

NUMBER 11 • SEPTEMBER 1960

NATIONAL INSTITUTE ECONOMIC REVIEW

This is a two-monthly review.

Every January the Review presents a full-length general survey of the economic situation.

Other issues contain a short general survey followed by special articles on
topical economic problems and studies of underlying trends.

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SUMMARY

The world economy

The conjuncture of world economic forces is changing. The rise in output in industrial countries is slowing down. In the United States, total demand may stop growing very soon and, unless some new stimulus appears, a downturn next year seems more probable than an upturn. In Britain and in other European countries, the pace of expansion slowed down in the second quarter. All these industrial areas stopped increasing their imports from primary producing countries in the second quarter ; since then, there has been a slight fall in commodity prices—in particular those of wool and rubber.

While primary producing countries' exports are levelling off, their imports have continued to rise ; they usually follow exports after a time-lag. The overseas sterling area's exchange reserves changed little in the first half of the year—usually a period of seasonal increase ; now they are probably falling.

Britain's competitive position and balance of payments

In this changing situation, Britain's exports have not been doing well. Both British and other Western European countries' exports have suffered from the check to United States imports of manufactures, which have not risen at all this year ; both have also suffered from the rise in United States exports. Nearly all the increase in primary producing countries' imports this year has come either from the United States or from Japan. But, whereas most other European countries have benefited from the rise in trade within Europe, Britain has not. The fall in Britain's share in world trade in manufactures—comparing the first half of this year with the first half of last—is much bigger than the average annual fall in recent years.

The prospects for British exports are not particularly bright—with greater American competition added to that of Japan and other Western European countries in a world market which is now growing more slowly. This is particularly true of exports to sterling area countries, where Britain probably still has more to lose from the decline in discrimination in her favour.

Although imports are levelling off, and there has been some fall in import prices, there is no reason to expect Britain's current balance of payments to improve much. The current surplus in the first half-year was only £35 million. The overseas sterling area's current balance is probably already worsening. The balance of payments prospect is uncomfortable ; if it were not for the inflow of hot money attracted by high interest rates, the reserves would now be falling.

The home economy

The change-round in exports is probably the main reason for the levelling out in production and unemployment in Britain in the second quarter of the year. Both consumption and investment continued to rise—though consumption probably rose more slowly in the second quarter than in the first ; indirect evidence suggests that the high rate of stock-building had not changed much up to the middle of the year.

The prospect, for the time being, is for a slow rise in total demand and output even if exports stay about level. Investment in stocks is more likely to fall than to rise. Consumers' spending should continue to go up gradually. The prospect for durables is uncertain. Sales of household durables might recover a little. Now that the backlog of demand for cars has been worked off, home demand is falling ; since export demand is also falling, car production is likely to come down appreciably.

The outlook for investment is, first, for a rapid rise in manufacturing industries' investment : the official enquiry suggests that this will continue into next year, with a forecast increase of 20 per cent. But the rise in investment in the other three sectors—private distribution and services, housing and public investment—has either slowed down already or is expected to do so soon. Public authorities' house building will probably decline gradually. Since private housing starts are still ahead of completions, there is a backlog of work here ; but demand may level off soon. Total investment, therefore, will now probably show a slower rate of rise. Further, with the prospect of only a slow improvement in total demand next year, industry may revise downwards its investment plans for 1961.

This slowing down in the rise in demand and in production has already checked the increase in output-per-man—but it is not likely to do much to check wage increases. Labour costs per unit of output have begun to go up slightly, and may well go up more. But the effect on prices should not be a big one. Import costs have been falling this year, and profits, which have been very buoyant, may be squeezed a little. The rise in the cost of coal should not be made the excuse for substantial price increases ; by itself, it only puts up manufacturing industry's total costs by about one-quarter of 1 per cent, and including all secondary effects the total cannot be more than $\frac{1}{2}$ per cent.

23 September 1960

The article on 'The State of the Oil Industry' is summarised on page 24 and the article on 'Energy and Expansion' on page 36.

THE ECONOMIC SITUATION

HOME

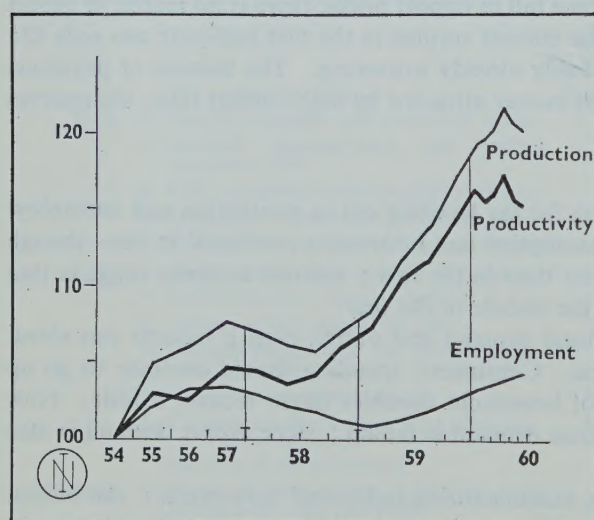
In the summer the growth of industrial output and the decline in unemployment slowed down. The main reason for this is that exports have fallen since the first quarter of the year. In overseas markets the growth of demand has also been slowing down.

Industrial production levels out

Having risen by 3 points in every quarter since the beginning of 1959, the index of industrial production is now estimated to have risen by only one point in the second quarter of this year. The monthly figures show no increase since April (chart 1). Although capacity must still limit output in some sectors, slackening demand appears to have been the main cause of the check to industrial output.

Chart 1. Production and productivity in industry

Index numbers, 1954=100, seasonally adjusted



Source: Appendix tables 2, 3 and 5. 1954-57 yearly, 1958-59 quarterly, 1960 monthly.

Between the first and second quarters output declined in a few industries and in a number of others the rate of increase slowed down. The changes do not, however, fall into a clear pattern.

There was a further decline in mining and ship-building, both of which have been depressed for some time. There were also declines in the vehicles industry—due mainly to the fall in car exports—and in the industries producing durable consumer goods.

Output increased in three other consumer goods industries—textiles, clothing, and also food, drink and tobacco—and continued to rise rapidly in the chemicals industry. Output of capital goods in the engineering industry also continued to rise, though perhaps more slowly than last year.

Metal output rose by $4\frac{1}{2}$ per cent. Consumption of steel, seasonally adjusted, rose by almost 7 per cent in the first quarter and again in the second. This may include some unrecorded stock-building. Recorded stocks of steel held by consumers rose by over 200 thousand tons in each quarter. These increases in demand were met by a large increase in output in the first quarter and by increased imports in the second. The tonnage of steel imports was as large in the second quarter as in the whole of last year. The rate of increase in recorded stocks was high but not extraordinary. The ratio of recorded stocks to consumption stopped falling but did not rise (table 1).

Stocks of sheet steel increased rapidly in both the first and second quarters and accounted for about a third of the rise in total recorded steel stocks. Consumption of sheet steel rose by no less than 15 per cent, seasonally adjusted, in the second quarter. This rate of increase is not expected to continue and as more capacity comes into production, imports, which were large in the first half, should soon fall.

Table 1. Steel consumption and consumers' stocks

Thousand tons of finished steel, quarterly rates

	Steel consumption, seasonally adjusted	Consumers' stocks of steel at end of period	Change in stocks over preceding period	Ratio of consumers' stocks to quarterly consumption
1954	3,110	3,100	— 90	1.00
1955	3,307	3,420	+320	1.03
1956	3,391	3,880	+460	1.14
1957	3,406	4,120	+240	1.21
1958 II	3,300	4,130	— 90	1.25
III	3,220	3,880	—250	1.20
IV	3,000	3,570	—310	1.19
1959 I	3,010	3,410	—160	1.13
II	3,280	3,240	—170	0.99
III	3,280	3,115	—125	0.95
IV	3,370	3,110	— 5	0.92
1960 I ^(p)	3,603	3,347	+237	0.93
II ^(p)	3,853	3,556	+209	0.92

Source: Iron and Steel Board.

(p) Provisional.

Unemployment and vacancies

There was only a small fall in unemployment and a small rise in vacancies between May and September, on seasonally adjusted figures. The demand for labour has been rising much more slowly than earlier in the year.

Table 2. Regional unemployment^(a) and unfilled vacancies, 1960Percentages, seasonally adjusted^(b)

	Unemployment			Unfilled vacancies			Vacancies less unemployed		
	Feb.	May	Aug.	Feb.	May	Aug.	Feb.	May	Aug.
Midlands	0.9	0.7	0.8	1.8	2.0	1.9	0.9	1.3	1.1
London and South East ..	1.0	0.9	0.9	1.5	1.7	1.7	0.5	0.8	0.8
North Midlands	1.2	1.0	1.0	1.5	1.7	1.6	0.3	0.7	0.6
East and South	1.2	1.1	1.2	1.8	1.9	1.8	0.6	0.8	0.6
East and West Ridings ..	1.3	1.1	1.1	1.2	1.3	1.5	-0.1	0.2	0.4
South West	1.9	1.5	1.5	1.7	1.5	1.5	-0.2	0.0	0.0
North West	2.1	1.9	1.8	1.1	1.3	1.4	-1.0	-0.6	-0.4
Wales	2.9	2.5	2.4	1.1	1.1	1.2	-1.8	-1.4	-1.2
North	3.0	2.7	2.6	0.7	0.6	0.6	-2.3	-2.1	-2.0
Scotland	3.8	3.5	3.3	0.6	0.6	0.7	-3.2	-2.9	-2.6
Great Britain ^(c)	1.7	1.5	1.5	1.3	1.5	1.5	-0.4	0.0	0.0

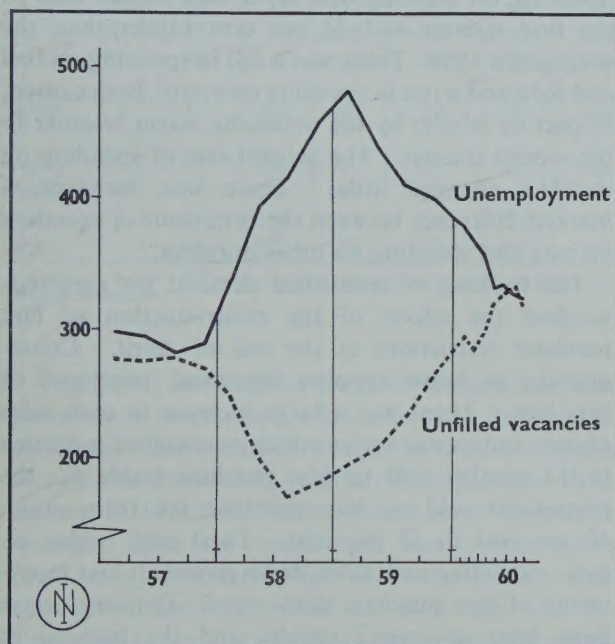
Source : Ministry of Labour Gazette. The numbers of unemployed have been divided by regional employment at the end of May 1959, the latest figures available.

(a) Wholly unemployed, excluding school leavers still without employment.

(b) Ministry of Labour seasonal adjustments.

(c) See Appendix, table 3, for September figures.

Chart 2. Unemployment and unfilled vacancies

Thousands, seasonally adjusted^(a)

Source : Ministry of Labour Gazette, 1957-59 quarterly, 1960 monthly.

(a) Ministry of Labour seasonal adjustments.

The regional differences in the pressure of demand appear to have evened out a little. In the Midlands and South, where for some time vacancies have exceeded the number unemployed, the excess is now smaller than it was. In the regions of higher unemployment, the excess of unemployed over vacancies has decreased (table 2). There has not been much difference in the trends of unemployment in the major industries.

Total employment, seasonally adjusted, has continued to rise ; it rose $\frac{1}{2}$ per cent between the first and second quarters. An increase of 1 per cent in manufacturing was partly offset by a continuing decline in agriculture, transport and communications, and mining.

The six-monthly earnings enquiry shows that the average working week in April was half an hour shorter than in October 1959. During that period about $4\frac{1}{2}$ million workers obtained a two-hour reduction in the standard working week. This was partly offset by an increase in overtime ; between February and May the amount of overtime worked was still generally rising. The size of the changes in actual hours has varied in different trades and reflects changes in demand and output. Within the engineering trades there was, for example, a decrease of more than two hours a week in the manufacture of radio and electronic apparatus and domestic appliances ; on the other hand, there was no decrease in hours between October and April in the motor industry (though since then conditions have changed), or in the manufacture of many capital goods.

The combination of a slower growth of industrial production and a continuing rise in industrial employment implies that the rise in output-per-man has been checked. (Output-per-manhour has continued to rise).

Costs and prices

Prices remain fairly stable. Retail prices have fluctuated a little, mainly because of changes in food prices, but in August they were at about the same level as at the end of last year. Other price indices have changed little. Import prices are slightly down

on the beginning of the year because of lower food prices and, recently, lower prices for oil; prices of other imported materials have not fallen. The recent rise in coal prices will raise the retail prices index, and also manufacturers' costs, by less than $\frac{1}{2}$ per cent.

If industrial production and productivity remain static, home costs are likely to rise. During the expansion last year the rapid rise in productivity more than offset the rise in wage earnings; labour costs per unit of output declined and profits per unit widened. Between last autumn and this spring labour costs appear to have risen again slightly because the rise in output per man—although it continued—had begun to slow down. Now it has stopped. Estimates of the changes up to April, the date of the last earnings enquiry, are given in table 3.

It is unlikely that a slower growth of demand will markedly retard wage increases. Wage rates will probably rise comparatively slowly for the rest of the year, during the interval before the next wage round. But it is unlikely that there will be such a change in the labour market that the next wage round will be reduced. Wage drift may slow down, and import prices may ease. Both these factors could mitigate the effects of a smaller productivity gain. And in any event there is unlikely to be a large rise in prices. The most probable outcome is a gradual rise, combined with a period of rather less easy profits.

Table 3. Costs and prices in manufacturing industry

Per cent increases

	April 1959 to October 1959	October 1959 to April 1960
Output ^(a)	7	4½
Employment ^(a)	2¼	2
Output per man ^(a)	4½	2½
Weekly wage earnings	3	3½
Wage costs per unit of output ..	-1¼	1
Material input prices	1	½
Total costs	-½	¾

Source: Appendix, tables 2 and 3 and *Monthly Digest of Statistics*.

(a) Seasonally adjusted.

Trends in demand

The check to the growth of output, the stabilisation of the labour market and the ending of the period of falling costs are signs that demand has risen less rapidly. But full information on demand is, as always, rather out of date. It is, therefore, possible to piece together only a rough impression of what has caused the change in trend.

Complete estimates of national expenditure are not available beyond the first quarter of the year. Provisional estimates for the second quarter suggest that while there was a definite fall in exports, consumers' expenditure and fixed investment both rose further. Government current expenditure on goods and services cannot have changed greatly. Since the net increase in these four items of final demand taken together was smaller than the increase in imports and home output, it looks as if investment in stocks may have continued to increase and cannot in any case have fallen back much. But any conclusion derived in this way is bound to be most tentative. The available information on the individual items of demand is reviewed in the following paragraphs.

Consumers' expenditure

Consumers' expenditure, seasonally corrected, is provisionally estimated to have risen by $1\frac{1}{2}$ per cent in value, or $\frac{1}{2}$ per cent in volume, between the first and second quarters of the year. The main increase was in spending on non-durable goods and on services. Spending on clothing was 4 per cent higher than in the first quarter and $7\frac{1}{2}$ per cent higher than the average for 1959. There was a fall in spending on fuel and light and a rise in spending on petrol, both caused, in part or whole, by the unusually warm weather in the second quarter. The general rate of spending on durables changed little. There was, however, a marked difference between the behaviour of spending on cars and spending on other durables.

The backlog of unsatisfied demand for cars outweighed the effects of the reintroduction of hire purchase restrictions at the end of April. Consequently, as home supplies improved, purchases of cars rose. There was a large increase in cash sales of cars and motor cycles which outweighed a decline in the number sold on hire purchase (table 4): the proportion sold on hire purchase fell from about 40 per cent to 32 per cent. Total cash outlay on cars—including cash sales, down payments and repayments of hire purchase debt—rose. Delivery delays have been decreasing rapidly and the backlog of demand must have been nearly worked off.

There was generally no backlog of unsatisfied demand for other durables—radio and electrical goods, furniture and furnishings. Hire purchase sales in the three months May, June and July were running at a rate 25 per cent lower than in the preceding four months, allowing for seasonal variation. Cash sales rose gradually, as they have done before. The net result was that total sales (cash and hire purchase) were down 10 per cent, and the proportion sold on hire purchase was down from about 50 per cent to 40 per cent. Total cash outlay scarcely changed.

Real income is likely to go on rising gradually and this should bring a continuing rise in spending on non-durables for the rest of the year. The satisfaction of the backlog of demand for cars will probably mean an appreciable fall in home sales in the fourth quarter; even if hire-purchase restrictions were removed, there would probably still be a fall. There is the possibility of a gradual recovery in purchases of durables other than cars.

Table 4. Consumers' expenditure on durable goods

£ million, current prices, quarterly rates, unadjusted

		Cars and motor cycles			Other durables		
		Hire purchase	Cash	Total	Hire purchase	Cash	Total
1958	I	41	56	97	67	96	163
	II	53	58	111	65	94	159
	III	42	45	87	74	92	166
	IV	39	50	89	134	110	244
1959	I	44	64	108	93	90	183
	II	59	78	137	103	97	200
	III	47	58	105	107	93	200
	IV	44	78	122	125	118	243
1960	I	55	108	163	96	102	198
April		71	106	177	100	100	200
May		61	125	186	82	101	183
June		48	136	184	73	101	174
July		45	134	179	77	107	184

Source: Board of Trade Journal, Monthly Digest of Statistics and NIESR estimates.

Total debt outstanding on hire purchase has been about static since April, after allowance for seasonal variation. This is mainly due to the decline of about one-quarter in the total volume of hire purchase sales, seasonally corrected. The increase in the average down payment after the restrictions was comparatively small, as is shown by the fact that the reduction in the amount of credit extended on each new sale has amounted to only about 5 per cent. But the period of repayment has of course been shortened.

Fixed investment

Revised figures confirm that in the first quarter fixed investment rose nearly 3 per cent, seasonally adjusted. This was the result of a rise in the private sector. Public investment fell slightly from the end-1959 level. The biggest increase was in investment in road vehicles, both commercial vehicles and cars. New registrations of goods vehicles, seasonally adjusted, were 16 per cent up on the previous quarter and more than 30 per cent higher than a year earlier.

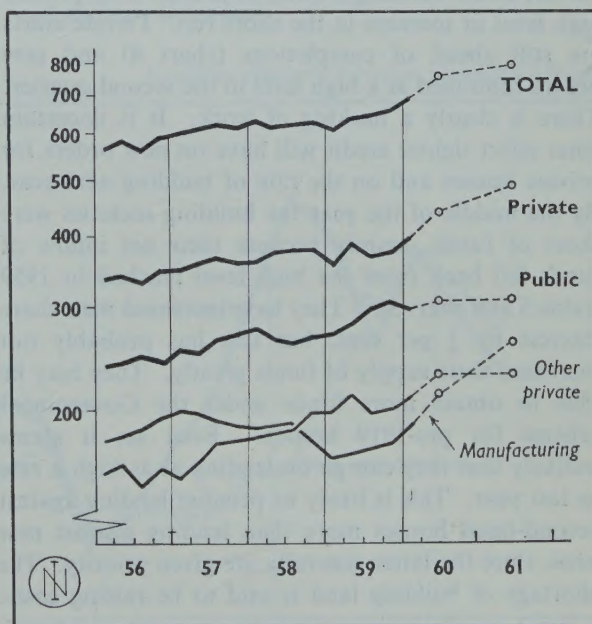
Investment in plant and machinery did not rise, a decline in public expenditure offsetting a rise in private. Investment in housing increased. Other construction is estimated to have risen 3 per cent.

Preliminary information suggests that total fixed investment rose further in the second quarter, though the rate of increase was probably less than before. House building increased and investment by private manufacturing industry rose nearly 7 per cent. But investment in the rest of private industry appears to have changed little: goods vehicle registrations and new building work for other private industry remained at about the same level as in the first quarter. Moreover public investment may have fallen slightly.

The outlook is for a rapid rise in fixed investment by private manufacturing industry. But the increase in fixed investment in the other three sectors—private distribution and services, housing and public investment—has slowed down or is expected to do so. Total fixed investment is therefore likely to continue rising, but at a declining rate. The available information on plans for fixed investment other than housing is summarised in chart 3.

Chart 3. Fixed investment (other than housing)

Quarterly averages or rates, £mn (1954 prices), seasonally adjusted, ratio scale



The circles show forecasts of annual figures for 1960 and 1961

Source: Appendix, table 9. Private sector forecast: Board of Trade Enquiry, Board of Trade Journal, 9 September 1960. Public sector forecast: Chancellor's statements of 6 April and 23 June 1960.

The recent Board of Trade enquiry into manufacturers' investment intentions shows an upward revision in plans for 1960 since the enquiry made at the end of 1959. Provisional results show that manufacturing industry plans to spend 25 per cent more in 1960 than in 1959. This increase is mainly in expenditure on plant, machinery and vehicles. The forecast implies a rise of about 10 per cent per quarter in the last half of this year. Intentions for 1961, which are more tentative, show a rise of 20 per cent over the forecast for 1960. The implied increase in the rest of this year is larger than seems feasible. But in that case the balance would carry over to next year. The latest figures for engineering orders and for construction orders confirm that there is likely to be a large increase in private industrial investment.

The results of the enquiry into the investment intentions of private firms in the distribution and service industries show that the very optimistic intentions for 1960 reported at the end of last year have been slightly reduced. They now expect to spend about 16 per cent more than last year. By the first quarter their spending was already 7 per cent above the 1959 rate.⁽¹⁾ The forecast therefore implies that their capital spending will level out at the volume probably reached by the middle of this year. The replies of firms in distribution and services about their intentions for 1961 confirm this view. They expect to spend no more in 1961 than in 1960.

House building by public authorities has continued about constant but will probably decline gradually. Private house building is likely to remain at its present high level or increase in the short run. Private starts are still ahead of completions (chart 4) and new orders continued at a high level in the second quarter. There is clearly a backlog of work. It is uncertain what effect tighter credit will have on new orders for private houses and on the rate of building next year. By the middle of the year the building societies were short of funds, mainly because their net inflow of funds fell back from the high level reached in 1959 (table 5 and chart 5).⁽²⁾ They have increased their share interest by $\frac{1}{4}$ per cent, but this has probably not increased their supply of funds greatly. They may be able to obtain more funds under the Government scheme for pre-1919 houses. Even so, it seems unlikely that they can go on lending at as high a rate as last year. This is likely to penalise lending against second-hand houses more than lending against new ones, since the latter generally are given priority. The shortage of building land is said to be raising costs.

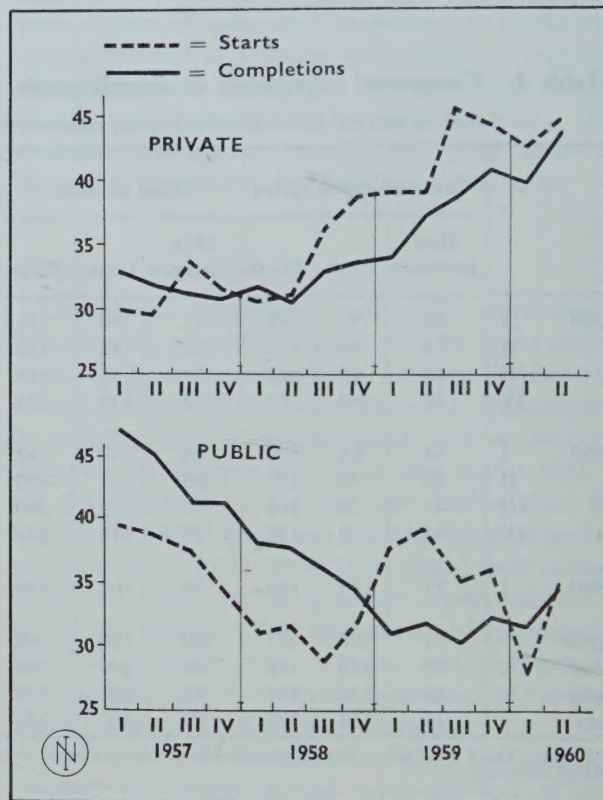
⁽¹⁾The enquiry does not cover the whole of private non-manufacturing industry and this to some extent invalidates comparison with figures of actual investment by the group. In the present context, however, the error is likely to be small.

⁽²⁾The cumulative excess of net saving over net lending as shown in the table is only sufficient to provide a conventional addition to liquid reserves.

That, together with the $\frac{1}{2}$ per cent rise in mortgage rates introduced by the building societies, may to some extent inhibit demand for new houses. None of these changes is likely to have a large effect. But they may cause private house building to level off later this year.

Chart 4. Housing starts and completions

Thousands, quarterly averages, seasonally adjusted



Source: *Monthly Digest of Statistics*, with NIESR seasonal adjustments.

Investment in stocks

As a result of a revision of the official statistics of stocks, the figure for total investment in stocks in the first quarter has been reduced from £105 million, seasonally corrected, to £75 million (both at 1954 prices). This is still a fairly high rate, but not exceptionally high for a period of expansion.

Provisional figures for the second quarter suggest that investment in stocks, seasonally corrected, remained high or may have increased compared with the first quarter. This fits the tentative conclusion derived from the national accounts (page 6 above). The provisional figure for investment in stocks by manufacturing industry was particularly high. Retail and wholesale stocks appear to have been comparatively stable.

Coal stocks rose again, though much less than in the second quarter of last year. As noted earlier, stocks of steel (which are included in the figures for manufacturers' stocks) continued to rise in the second quarter.

Table 5. Building Societies : net saving and lending

£ million, quarterly averages

	Shares and deposits			Mortgage advances			Excess of saving over lending	Funds available under House Purchase Act ^(b)
	Receipts ^(a)	Withdrawals, including interest	Net new saving	New advances	Repayments of capital	Net new lending		
1953	88	49	39	75	37	38	+ 1	
1954	109	55	54	93	49	44	+10	
1955	119	71	48	98	54	44	+ 4	
1956	120	81	39	84	52	32	+ 7	
1957	127	84	43	94	55	39	+ 4	
1958	142	94	48	94	57	37	+11	
1959	173	104	69	128	71	57	+12	
1958 I ..	133	98	35	81	49	32	+ 3	
II ..	132	92	40	91	52	39	+ 1	
III ..	140	92	48	98	59	39	+ 9	
IV ..	163	95	68	105	69	36	+32	
1959 I ..	170	93	77	95	58	37	+40	
II ..	170	104	66	130	71	59	+ 7	
III ..	166	111	55	144	76	68	-13	} +15
IV ..	185	109	76	142	80	62	+14	
1960 I ..	179	118	61	129	71	58	+ 3	+ 9.5
II ..	166	116	50	142	76	66	-16	+ 9.5

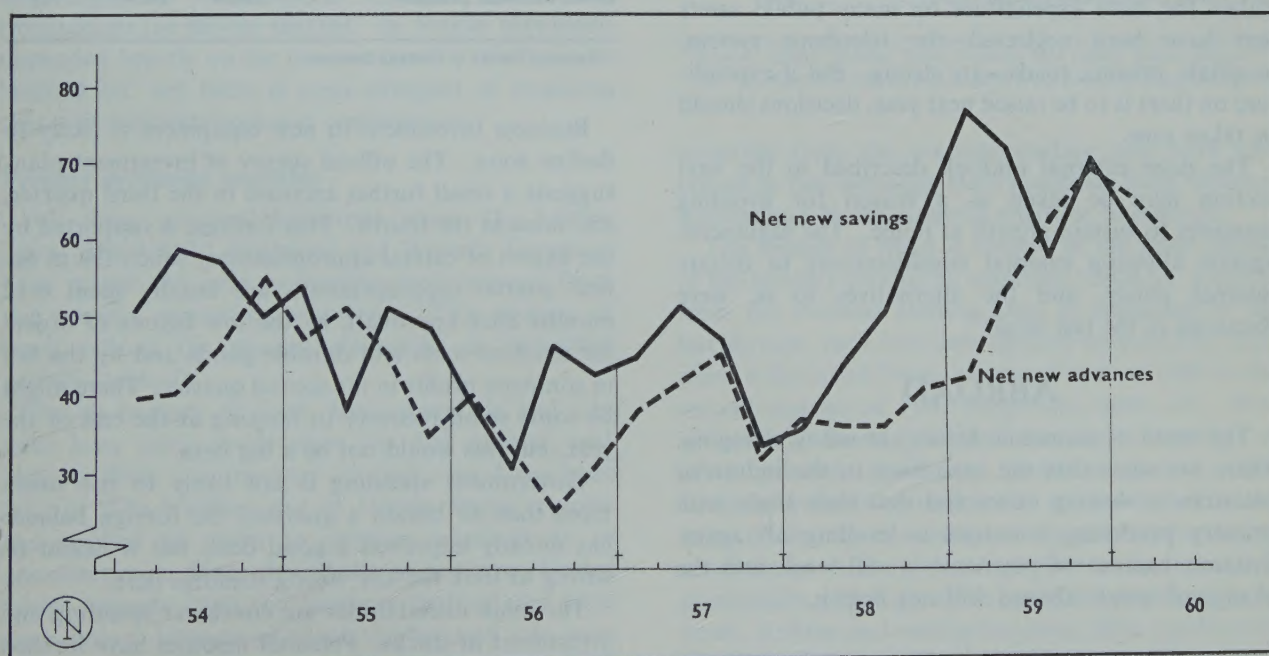
Source : Annual figures, *Report of the Chief Registrar for Friendly Societies, 1959, Pt. V.* Quarterly figures are estimated from figures for societies holding 90 per cent of total assets.

(a) Includes interest due on shares and deposits, so that net new saving includes interest credited and not withdrawn.

(b) Loans under the scheme are included in total new advances, so that to the extent that Societies reborrow from the Treasury, this represents an additional source of funds.

Chart 5. Building Societies : net saving and lending

£ million, quarterly averages, seasonally adjusted



Source : Table 5, with NIESR seasonal adjustments.

The general trend of demand

In the following section on trends abroad it is suggested that exports will remain about level. Investment in stocks is more likely to fall than to rise—apart from a possible temporary lump of unintended stock-building. Government current expenditure on goods and services is unlikely to change much. There is still some momentum in the growth of fixed investment and consumers' expenditure. That for the time being may induce some continuing growth of total output.

Changes in output are unlikely at this stage to follow a simple general pattern. Investment goods industries that cater for private manufacturing industry at home should generally experience a rise in output, while those that cater for public investment of some types, for example coal mining and railway equipment, may experience a decline. Export demand is likely generally to be less strong, but this will have an uneven impact too. In the consumer goods industries trends in final demand are likely to vary. A number of industries, including those producing materials and intermediate products, may be faced with lower demand for stock-building.

If there were no change in policy, these conditions might last until the end of the year or beyond. But investment in stocks might always be cut back, and if capacity began to be under-utilised, private industry would be likely to start revising its investment plans downwards. If the investment plans for 1961 are to be carried out and followed by more, some new stimulus will probably be required by the end of this year, or early next year. Consumers' expenditure can always be quickly stimulated, but investment cannot. The claims for more expenditure on many public assets that have been neglected—the telephone system, hospitals, prisons, roads—are strong. But if expenditure on them is to be raised next year, decisions should be taken now.

The poor external outlook described in the next section may be taken as a reason for avoiding measures to sustain growth at home. The arguments against allowing external considerations to dictate internal policy, and the alternatives to it, were discussed in the last issue.⁽¹⁾

ABROAD

The trend of economic forces abroad is changing. There are signs that the expansion in the industrial countries is slowing down and that their trade with primary producing countries is levelling off again. Britain's balance of payments is still weak and the change of trends abroad will not help it.

The United States

In the second quarter of the year, total demand in the United States was kept up by consumer spending (particularly on non-durable goods and services) and by business investment in new equipment; as against this, the rate of stock-building fell sharply. There was a net rise in the gross national product, though a much smaller one than in the first quarter (table 6). The forces of expansion are weakening.

Table 6. United States : gross national product

\$ billion, seasonally adjusted, annual rates, current prices

	Level, 1959	Change on previous quarter	
		1960	
	IV	I	II
Private consumption	319.6	3.7	5.7
<i>of durable goods</i>	43.5	0.7	0.3
<i>of non-durable goods</i>	149.6	0.9	3.0
<i>of services</i>	126.6	2.0	2.2
Private fixed investment ..	66.1	1.7	2.3
<i>housing</i>	21.3	0.1	-0.1
<i>other new construction</i> ..	18.1	1.2	-0.1
<i>plant and equipment</i> ..	26.8	0.3	2.4
Stock-building	+4.7	6.7	-6.1
Government purchases of goods and services	96.4	1.1	1.1
Net exports of goods and ser- vices	-0.4	1.6	0.8
Gross national product ..	486.4	14.9	3.7

Source : Survey of Current Business.

Business investment in new equipment is likely to decline soon. The official survey of investment plans suggests a small further increase in the third quarter, and none in the fourth. This forecast is supported by the figures of capital appropriations, which fell in the first quarter (appropriations are usually spent 6-12 months after approval), by the low figures of orders for machine-tools and durable goods and by the fall in company profits in the second quarter. There might be some small recovery in housing at the end of the year, but this would not be a big item.

Government spending is not likely to rise much more than \$1 billion a quarter; the foreign balance has already improved a good deal, but it would be wrong to look for any strong stimulus here.

The main uncertainties are consumer spending and investment in stocks. Personal incomes have levelled off—they did not rise in July or August; and the

⁽¹⁾National Institute Economic Review, no. 10, pages 16-17.

National Conference Board survey of consumers' buying intentions suggested that consumers this year plan to spend 10 to 30 per cent less than they did last year on durable household goods—although they intend to buy 5 per cent more new cars. The proportion of income saved has already risen. Though consumer spending may go on rising (it rose throughout the 1958 recession) the pace of advance is likely to be much slower than in the first half of this year.

Some further decline in the rate of stock-building seems probable and that might easily be enough to counteract the probable increases in the other items of demand. On balance therefore total demand seems very likely to stop growing soon. Once that happens, investment in fixed assets and in stocks will probably be cut back again. Unless some new stimulus to demand appears, another downturn in output is the most probable outcome next year.

Europe

On the Continent there was a further increase in industrial production in the second quarter, but the pace of expansion slowed down in a number of countries. The slower growth of demand overseas may partly explain this. If that persists, or is aggravated by a downturn in America, some further slackening in expansion must be expected. The levelling out of Continental imports from the primary producing countries suggests that investment in stocks has been reduced, and it points to some weakening in confidence. In the field of policy, the conflict of opinion continues between those who fear inflation and those who fear stagnation. It is most pronounced in Germany, where prices have risen remarkably little and expansion continues in spite of the intense pressure on the labour market. In France expansion depended heavily on the rise in exports; this has now levelled off, but there is some prospect of measures that will stimulate personal consumption.

Primary producing countries

All three principal industrial areas—the United States, the United Kingdom and Western Europe—have ceased this year to increase their imports from the primary producing countries. This change of trend reflects the general slackening in industrial activity (table 7).

British imports of food, basic materials and fuel have been fairly stable since the first quarter, and imports from the overseas sterling area have been falling. The levelling out of United States imports has applied as much to primary products as to manufactures. Since the middle of last year, United States imports from the overseas sterling area have risen little; imports of wool, rubber and jute have been substantially reduced. The imports of EEC

Table 7. Industrial areas : value of imports

\$ million

	1959				1960	
	I	II	III	IV	I	II
United Kingdom						
<i>From</i>						
OEEC	697	772	761	843	903	857
North America ..	415	442	460	597	569	655
Overseas sterling area	1,013	1,002	976	1,052	1,130	1,045
Latin America ..	215	246	235	205	215	244
Other	294	292	322	333	333	393
Total	2,634	2,754	2,754	3,030	3,150	3,194
United States^(a)						
<i>From</i>						
OEEC (exc. UK) ..	709	815	834	895	863	774
UK	252	291	285	296	294	276
Overseas sterling area	348	386	369	383	364	386
Latin America ..	958	894	834	815	918	947
Canada	606	798	769	862	714	751
Other	649	608	686	646	663	696
Total	3,522	3,792	3,777	3,897	3,816	3,830
EEC countries						
<i>From</i>						
OEEC (exc. UK) ..	2,431	2,722	2,738	3,259	3,302	3,376
UK	317	352	323	366	378	396
North America ..	670	681	673	795	999	1,035
Overseas sterling area	544	617	551	587	698	627
Latin America ..	375	410	414	436	429	465
Other	1,153	1,260	1,193	1,346	1,472	1,448
Total	5,490	6,042	5,892	6,789	7,278	7,347

Source : OEEC Foreign Trade Statistics and United States statistics.

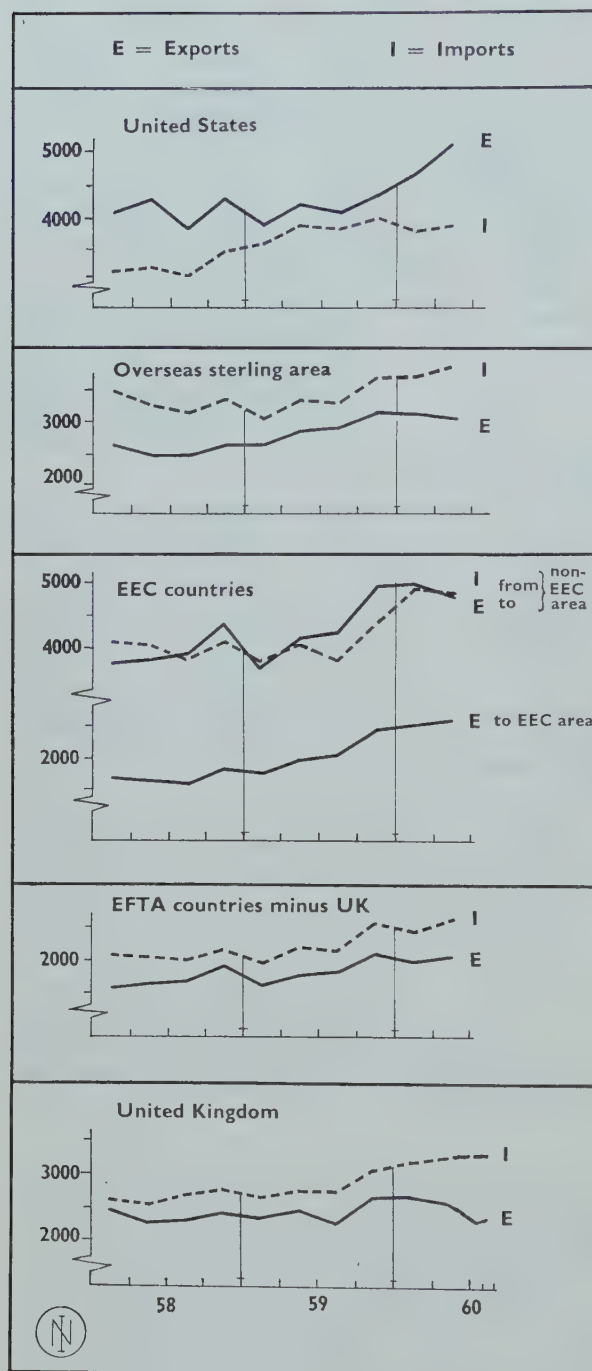
(a) The figures are f.o.b., and so differ from those in Appendix table 18.

countries from the overseas sterling area have also ceased to rise, although their purchases from Western Europe and North America continue to increase.

The change of trend is evident in the trade figures of the primary producing countries (chart 6). Exports from the overseas sterling area, as suggested in the last Review, have lost their upward momentum; they show a flat trend from the second half of 1959 to the second quarter of 1960 (Appendix, table 19). Provisional figures suggest that the export earnings of other primary producing countries rose a little. Judging by the price indices the volume as well as the value of the export earnings of the primary producing countries has been stable. At present levels of demand, commodity prices generally must be expected to be weak. Rubber and wool prices have fallen significantly since the middle of the year (Appendix, table 25).

Chart 6. World trade trends

\$ million, quarterly rates



Source: OEEC General Statistics, EEC General Statistical Bulletin, and national sources.

This weakening in the export earnings of primary producing countries has not yet led to a check to the increase in their imports: that usually follows the trend of exports with a time-lag. In nearly all the main overseas sterling countries, except India, imports have been rising fairly steadily since the beginning of last year. The expansion has been most marked in Australia, and Indian imports increased in the second quarter of 1960.

Despite worsening trade balances, the exchange reserves of the overseas sterling area, supported by the inflow of capital, were not falling in the second quarter—except in India and South Africa where special factors were at work. But at that time of the year, their reserves should be rising. Since June Australian and New Zealand reserves have begun to fall.

British exports and world trade

The expansion in British exports lasted hardly a year, and reached a peak in the first quarter of this year. Since then, the general tendency has been downwards (table 8). All the main commodity groups are affected, except chemicals.

The main actual decline has been in exports to North America; sales of a wide range of manufactured goods, as well as sales of cars, have fallen. But exports to Western Europe, to the overseas sterling area, and to other primary producing countries have all stopped rising. The fall in our North American exports can be explained by the contraction of total demand for manufactured imports there. But the stagnation in our exports to other areas seems to be due to a loss of our share in their markets, since outside North America total imports have continued to rise.

Exports of Britain's European competitors have been checked as well. Total exports of the six members of the EEC fell 2 per cent (seasonally adjusted) between the first and second quarters of this year; German exports fell 3½ per cent—the first significant reduction, in value or volume, in any quarter in the past five years (table 9). Dutch and Italian exports were still rising up to the middle of the year, but the increase in French and Belgian exports was checked.

EEC countries' exports, like Britain's, fell to North America and stopped rising to primary producing countries; but, unlike Britain's, they went on rising within Europe.

Meanwhile, most of the increase in the market for manufactures within Europe and North America has been met by the United States and, to a lesser extent, by Japan. During 1959, United States exports of manufactures were roughly stable; since the end of the year they have risen sharply, and went on rising in the second quarter. They were then 18 per cent above 1959's quarterly average⁽¹⁾ (table 10). Total United States exports—which include foodstuffs and raw materials and deliveries under various aid programmes—have risen more than this (chart 6).

⁽¹⁾This figure includes a large increase in exports of aircraft; these are very variable, and were particularly large in the second quarter. Excluding aircraft, the increase was 9 per cent. But aircraft exports are likely to remain high for some time while world airlines complete their present re-equipment programmes.

Table 8. Volume of UK exports, by area

Index numbers, 1954 = 100, seasonally adjusted

	Actual exports 1959 (£ million)	1959				1960	
		I	II	III	IV	I	II
Overseas sterling area ^(a)	1,374	96	97	97	103	99	101
Other primary producers	356	117	109	108	108	130	117
North America	567	167	197	189	196	207	181
Western Europe	911	109	116	119	123	127	128
Total all areas^(b)	3,330	108	114	116	120	124	120^(c)

Source : Appendix table 16.

(a) Includes Iraq.

(b) Includes areas not shown separately and adjustments for dock strikes, etc., not applied to individual areas.

(c) The provisional figure for July is 111, and for August 121.

Table 9. Western Europe and the United States : value of total exports

\$ million, monthly averages, seasonally adjusted

	1959				1960	
	I	II	III	IV	I	II
United Kingdom	759	806	809	854	882	857
Western Germany ^(a)	774	790	827	877	950	916
France	394	467	490	529	586	543
Italy	225	220	256	264	302	313
Belgium	246	267	291	289	310	312
Netherlands	286	299	295	323	328	337
Total EEC	1,925	2,043	2,159	2,282	2,476	2,422
Sweden	190	183	171	196	229	204
Switzerland	133	138	142	149	145	156
United States ^(b)	1,398	1,413	1,506	1,471	1,661	1,725 ^(c)

Source : OEEC Foreign Trade Statistics, Series A, August 1960.

(a) Includes exports to Saar in first half of 1959.

(b) Excludes re-exports.

(c) Estimated.

Table 10. United States exports by area

\$ million

	1959				1960	
	I	II	III	IV	I	II
United Kingdom	176	185	237	265	283	347
Continental OEEC	772	768	849	972	1,092	1,170
Canada	836	1,007	904	898	894	1,021
Latin America	839	892	874	871	824	909
Overseas sterling area	364	369	378	400	491	553
Other areas	653	697	646	745	817	757
Special category ^(a)	452	479	414	430	435	523
Total^(b)	4,092	4,397	4,302	4,581	4,836	5,280
of which :						
Food, materials and semi-manufactures	1,527	1,648	1,771	1,939	2,077	2,186
Finished manufactures	2,565	2,749	2,531	2,642	2,759	3,094

Source : OEEC and United States trade statistics.

(a) These are not included in the area figures given above.

(b) Excluding re-exports.

This new expansion of United States exports has spread to most markets (table 10), but particularly to the overseas sterling area; here total United States exports in the second quarter were 40 per cent higher than in the fourth quarter of 1959. This rise includes large shipments of grain to India and Pakistan; even so, the increase in exports of manufactures was substantial. United States exports to Western Europe continued to rise, but trade with Latin America and Canada changed little.

Japan's exports, which were flagging in the first quarter of 1960, increased again in the second quarter, especially to the overseas sterling area.

In brief, British exports have been losing ground during this year to all competitors in the expanding Western European markets. Both Britain and Western European countries have lost ground to the United States and Japan in the expanding markets of the overseas sterling area, and both have suffered from the contraction of the North American market for imported manufactures. So, from the first to the second quarter of 1960, the shares of the United States and Japan in world trade in manufactures rose; the shares of Britain, Western Germany and France fell (Appendix, table 21).

The disturbing feature about Britain's loss of share is that it has been more rapid than before. Provisionally, it fell about $1\frac{1}{2}$ points (from 18.1 to 16.8 per cent) between the first half of 1959 and the first half of 1960. This compares with an average fall of about $\frac{1}{2}$ a point a year from 1955 to 1959.

Prospects for exports

Trends in world markets in the last few months offer little encouragement for the near future. It is true that export order books in the British engineering and electrical industries are still well filled, and up to June there was no weakening in the inflow of new orders. This should support engineering exports for some months, but they are only about a quarter of total exports.

For the rest of this year, the general trend of British exports might be fairly stable. Even if the fall in exports to North America continues, there are still possibilities of a resumed increase in exports to Western Europe and to some countries in the sterling area.

Looking further ahead, the prospects for exports are not bright. The recent expansion of United States exports, even if it contains some temporary elements, appears to have been the result of an increasing awareness in American industry of export opportunities. This is likely to grow, the more so if home demand remains slack. The check to the expansion of the German, and perhaps the French, shares of world markets is unlikely to last long—although their

competitive gains may be less spectacular than in the past, now that American competition is more forcible. There is little sign of an improvement in Britain's competitive strength which would stop her share falling.

The problem of Britain's diminishing share of trade is particularly acute in the overseas sterling area where our competitive losses have been greatest in recent years. In overseas sterling countries, Britain still holds about half of the total market for imports of manufactures—a far larger share than in any market where we enjoy no special preferences.⁽¹⁾

Britain must still have much to lose in the sterling area from the decline in discrimination, the erosion of imperial preferences and the ending of the political, administrative, and sentimental bonds which formerly brought in trade, but are now weakening as independence spreads and traditions change. Having gained more than any other country from links of this kind, Britain stands to suffer most as they dissolve. When private back gardens go out of fashion, those with the biggest back gardens have the most to lose.

Imports

Recent trends in imports were reviewed in detail in our last issue. The latest figures suggest that imports, as expected, have been levelling out. Since the first quarter, imports of food, fuels, and basic materials have changed little in volume. Imports of semi-manufactures, in particular steel and non-ferrous metals from North America, have continued to increase fast and must have been going into stock. This is confirmed by the figures for steel stocks in the second quarter, noted earlier. Imports of finished manufactures have not risen in recent months.

The switch to dollar sources of supply has become even more marked. In the first eight months of 1960, imports from the United States were more than 60 per cent higher than in the same period a year earlier.

Import arrival prices have fallen 2 per cent during the first half year and this has moderated the effects of the growth in volume. The NIESR index of current market prices of imported commodities shows that in the last month or so materials and fuel prices have fallen but food prices have risen (Appendix, table 24.)

The check to the growth of demand in Britain and abroad may be accompanied by some check to investment in stocks of primary products—though this effect is not likely to be a major one, since such stock-building does not appear to have been great.

⁽¹⁾*National Institute Economic Review*, no. 10, July 1960, page 26.

If investment in stocks of primary products were checked, this would probably cause some further easing of commodity prices and represent another phase in the slackening in international demand and world trade.

The balance of payments

In the first half of 1960 the balance of payments current surplus was £35 million. But this figure gives too favourable a picture. The visible trade deficit, on a payments basis, was smaller in the first half of 1960 than in the second half of 1959, in spite of the big deterioration recorded in the trade accounts. This seems to imply that payments for imports from the non-sterling area have been deferred. Any backlog of payments will presumably be worked off at some future date. This may not happen, however, as long as present conditions continue, with confidence in sterling strong and credit tighter in London than in other centres.

The first half of the year is normally more favourable than the second for invisible transactions. Yet the invisible surplus this time (£62 million) was the smallest for any half-year in the past twelve years. It may not recover much, so long as oil prices stay low. Further, payments on other countries' holdings of sterling will have risen sharply now that interest rates and the total level of the balances have both increased.

Overseas sterling area and the reserves

Up to the end of last year, the weakness of Britain's balance of payments was offset by the strength of the overseas sterling area's position. Now that position appears to be worsening. By the second quarter of 1960, the overseas sterling area's visible deficit (excluding oil-producing countries) was probably running at about the same level as in 1958—the worst period for several years—and present prospects suggest that it will deteriorate further in the second half of 1960.

The gold and convertible currency reserves have recently been sustained by heavy capital inflows from the non-sterling world; these have been due mainly to the peculiar relationship between short-term interest rates in London and other international centres. In July and August, the reserves rose by £64 million. They are still lower than they were a year ago, but big debt repayments have been made meanwhile. The loan of £89 million from the Export-Import Bank has been paid off and liabilities to the IMF reduced by some £75 million.

A great mass of new short-term debt has accumulated at an increasing rate. The sterling balances of non-sterling countries mounted by over £200 million from mid-1959 to mid-1960. Over half this rise took place in the second quarter, and the recent behaviour of reserves and exchange rates suggests that it may well have become even steeper since the bank rate was increased towards the end of June. On top of this there is the probable backlog in import payments, which could amount to over £50 million.

Table 11. Changes in reserves and sterling holdings

£ million

		Gold and convertible currency reserves	Sterling holdings of non-sterling world		
			IMF	Other	Total
1959 III	.. ..	+ 40	— 8	+ 40	+ 32
IV	.. ..	—196 ^(a)	—	+ 37	+ 37
1960 I	.. ..	+ 16	—15	+ 17	+ 2
II	.. ..	+ 40	—18	+109	+ 91
Year ending June 1960		—100 ^(a)	—41	+203	+162
1960 July & August ..		+ 64	—36 ^(b)	..	..

Source : *Economic Trends*.

(a) Includes : Export-Import Bank repayment, —89 ; end-year North American debt service, —68.

(b) Estimate.

The outlook

The outlook for the balance of payments is uncomfortable. Our exports persistently do worse than those of our competitors. They are not likely to rise now that there are signs of incipient recession abroad. They may well fall. If imports decline in volume or price (or both) Britain's current balance may temporarily improve. But any such decline—especially in so far as it is in imports of primary products—would aggravate the incipient recession abroad. That would weaken the balance of the overseas sterling area and would be followed by a decline in demand for British exports. The relief gained from a fall in imports would therefore be somewhat ephemeral.

For the moment the problem is hidden by the inflow of funds in response to Britain's very high interest rates. If it were not for that, the reserves would be falling.

THE STATE OF THE OIL INDUSTRY

This article is by P. H. Frankel and W. L. Newton, who are professional oil economists.⁽¹⁾ The summary and the conclusion are on pages 24 and 25.

The oil industry has grown more rapidly and more regularly in this century than almost any other major industry. Its growth continues unchecked; but lately, a growing world surplus of oil has become noticeable. This is not a new problem. There has more often than not been a surplus of oil in time of peace—in the sense that the big companies could at short notice have increased their output of crude oil substantially. What changes, partly in response to the size of the surplus, are the methods by which supply is regulated and prices are determined. This article examines the present position in the industry.

The main areas

It is no longer possible to treat the world market for oil as a single market. There are three separate spheres to consider: the United States, the Soviet bloc, and the remaining countries of the world.

Both the United States and the Soviet bloc are potentially self-sufficient, being at the same time major producers and consumers. Their foreign trade in oil is sizeable but not vital, the United States being now a net importer, the Soviet bloc a net exporter.

Because the United States has ceased to be an exporter of oil and is not at present essentially dependent on foreign supplies, she has been able to insulate her home oil industry to a certain extent from that of the rest of the world. Since the early thirties, oil output has been regulated by administrative decisions in Texas, Louisiana and the other main producing states. But exploration, especially development drilling, has been stimulated by the prices which result from this control, as well as by the method by which production quotas are established, and by certain tax advantages. Hence the effect has been to restrict output but at the same time to expand capacity. This system could not stand up to competition coming from foreign oil fields which were more prolific and organised in a less wasteful fashion. For some time United States oil was protected by the self-discipline of the few American companies which operated abroad on a large scale. But this 'industrial statesmanship' has ceased to be altogether effective, and since 1959 oil imports have been controlled rigidly by the Federal authorities.

Roughly speaking, crude oil imports are now limited to about 10 per cent of domestic demand. If petroleum products are taken into account the figure is 18 per cent.

The international transactions of the Soviet Union are channelled through a central organisation. Whereas the impact of Soviet oil on the world could become significant, the opposite is not true. The Russians can keep out foreign oil, and their exports are not essential for them.

The characteristic feature of oil markets in the remaining areas of the world is the polarisation of supply and demand: the main producers—Venezuela, the Middle East and now North Africa—have no sizeable demand for oil, and the biggest consumers, notably Western Europe, have little or no home oil

Table 1. World oil consumption, 1950–1959, with estimates for 1965 and 1970^(a)

Million tons, crude oil equivalent

	1950	1955	1959	1965	1970
				<i>Estimates</i>	
United States ..	317	404	453	555	660
Canada	17	32	39	55	70
Latin America ..	45	65	81	120	160
Total Western Hemisphere	379	501	573	730	890
United Kingdom ..	18	28	41	60	80
France	8	22	26	37	45
Germany	4	13	26	44	59
Italy	4	12	18	29	39
Other Western Europe	29	46	59	86	117
Total Western Europe	63	121	170	256	340
Africa	14	17	20	30	42
Middle East ^(b)	14	19	28	44	65
Japan	3	12	21	41	60
Other Asia	17	23	29	43	58
Australasia	5	9	12	16	20
Total Eastern Hemisphere	116	201	280	430	585
Soviet bloc	44	79	130	240	325
Total world	539	781	983	1,400	1,800

Source: National official statistics, *Petroleum Press Service, Oil and Gas Journal, World Oil, Statistical Review of the World Oil Industry* (published by the British Petroleum Company) and the authors' own estimates. These are the sources for all tables and charts in this article.

(a) The difference between total consumption in this table and total production (table 3) is accounted for by natural gas liquids, stock changes, etc.

(b) Including Egypt.

⁽¹⁾The authors are indebted to D. C. Thompson of Petroleum Economics Limited for his help in preparing the statistics for this article.

Table 2. World crude oil reserves, production, producing wells, production : reserve ratio and average production per well, 1950 and 1959

	Reserves of crude oil at end year ^(a)		Crude oil production during year ^(a)		Number of producing wells (mid-year)		Production: reserve ratio		Average annual production per well	
	Million tons		Million tons		Number		Years		Thousand tons	
	1950	1959	1950	1959	1950	1959	1950	1959	1950	1959
United States	3,360	4,205	267	341	470,000	580,000	12.6	12.3	0.6	0.6
Canada	160	465	4	25	3,433	16,018	40.0	18.6	1.2	1.6
Venezuela	1,290	2,580	79	145	8,341	9,384	16.3	17.8	9.5	15.5
Other Western Hemisphere	350	895	22	41	10,447	17,397	15.9	21.8	2.1	2.4
Total Western Hemisphere	5,160	8,145	372	552	492,221	622,799	13.9	14.8	0.8	0.9
Kuwait	1,490	8,410	17	68	73	301	87.6	123.7	232.9	225.9
Saudi Arabia	1,200	6,660	27	53	103	188	44.4	125.7	262.1	281.9
Iran	1,595	4,660	32	45	82	93	49.8	103.6	390.2	483.9
Iraq	1,095	3,320	6	41	23	85	182.5	81.0	260.9	482.4
Other Middle East	155	1,375	5	19	200	558	31.0	72.4	25.0	34.1
Total Middle East^(b)	5,535	24,425	87	226	481	1,225	63.6	108.1	180.9	184.5
Sahara ^(c)	—	635	—	1	12	60	—	(d)	—	(d)
Libya	—	200	—	—	—	—	—	—	—	—
Other Africa	—	40	—	2	41	219	—	20.0	—	9.1
Total Africa	—	875	—	3	53	279	—	(d)	—	(d)
Indonesia	140	1,200	6	17	1,697	2,250	23.3	70.6	3.5	7.6
Other Far East	85	155	6	7	721	4,156	14.2	22.1	8.3	1.7
Europe	70	215	4	13	3,329	5,844	17.5	16.5	1.2	2.2
Total Eastern Hemisphere ..	5,830	26,870	103	266	6,281	13,754	56.6	101.0	16.4	19.3
Soviet Union	1,030	3,840	37	127	20,000	38,000 ^(e)	27.8	30.2	1.9	3.3
Roumania	40	135	5	11	2,200	4,400 ^(e)	8.0	12.3	2.3	2.5
Other Soviet bloc	10	155	1	6	2,000 ^(c)	4,000 ^(e)	10.0	25.8	0.5	1.5
Total Soviet bloc	1,080	4,130	43	144	24,200	46,400	25.1	28.7	1.8	3.1
Total world	12,070	39,145	518	962	522,702	682,953	23.3	40.7	1.0	1.4

Source : See table 1. — = nil, or less than 500,000 tons.

(a) Excluding natural gas liquids.

(b) Including Egypt.

(c) Including Algeria.

(d) As production in this area is not yet fully developed, it is not possible to give a representative figure.

(e) Estimated.

production.⁽¹⁾ In these areas, which produce 50 per cent and consume 40 per cent of the world's oil, most of the oil crosses national boundaries. Consequently, and in contrast to the United States⁽²⁾ and the Soviet bloc, there is no national authority to manage oil supply problems.

⁽¹⁾There are some exceptions. Canada has substantial oil resources but is still a net importer; Argentina is moving towards self-sufficiency; Austria covers most, Western Germany a sizeable part, of its requirements by indigenous oil; Indonesia supplies some oil to adjacent areas.

⁽²⁾In the United States oil import regulations are in the Federal domain but domestic production is regulated by the various states; thus within the United States there is also a problem of coordination which is only imperfectly solved by the Interstate Oil Compact.

Trends in demand

World oil consumption, expressed in terms of crude oil, rose from 270 million tons before the war to almost 1,000 million tons in 1959. The world-wide increase from 1950 to 1959 was thus about 7 per cent a year; this compares with a rise in consumption of all forms of energy of under 5 per cent a year during the same period.

Table 1 shows the variation in the growth of oil demand in different parts of the world. In the United States, where petroleum has for some time supplied a large part of the demand for energy, and where the general rate of economic growth in the past decade has been low, there has been a much smaller rate of

increase (4 per cent a year) than in the rest of the world (10 per cent a year). Between 1950 and 1959 the United States proportion of world oil consumption declined from 59 per cent to 46 per cent.

Over this period, oil consumption has risen fastest in the industrial areas of the Eastern Hemisphere—the OEEC countries, Japan, Australasia and the Soviet bloc. In each of these areas consumption has risen at a rate of 10 per cent a year or more—in Japan much more. Nevertheless in all these areas consumption per head of energy in general and of oil in particular is still much lower than it is in the United States.⁽¹⁾

Although the rate of substitution for other fuels may not be as high as in the 1950s, oil consumption in the 1960s is still likely to grow much faster than that of any other fuel. Demand will continue to rise faster in Europe, Asia and Africa than in North America. Some estimates for 1965 and 1970 are given in table 1 and chart 2. On the assumption that economic growth is not interrupted, and taking into account the likely competitive position of oil and other fuels, it is estimated that total world demand may reach about 1,400 million tons in 1965 and perhaps 1,800 million tons in 1970.

Trends in supply

Since 1950, world oil reserves have risen more than threefold—much faster than consumption. They stood at 40 thousand million tons in 1959 (table 2). These figures are for proven reserves recoverable by applying today's techniques. If semi-proven reserves are taken into account and allowance is made for future improvement in techniques, the ultimately recoverable reserves of oil in the world are undoubtedly much higher.

Most of the new reserves have been found in the Middle East, and very little of them in the United States. Consequently there has been a big shift in the location of reserves away from the Western Hemisphere. The United States share in the world total has fallen from over a quarter in 1950 to little more than a tenth now; and Venezuela's share has fallen too. On the other hand, in the Middle East oil reserves increased almost fivefold, and now account for 60 per cent of the world total; and the Soviet Union's reserves rose about fourfold, and are now nearly as big as those of the United States. Indonesia's reserves also rose significantly. Finally, in the Sahara, Libya and West Africa, where oil has only recently been discovered, proven reserves are at present small,

but show promise of becoming much bigger in the near future. These discoveries have shown that deposits of commercially recoverable oil are more widespread than was previously thought.

The pattern of world production in the last decade has changed in much the same way as the pattern of world reserves. United States oil output has risen relatively slowly—more slowly than consumption; consequently her net oil imports rose from 29 million tons in 1950 to 79 million in 1959. Venezuelan output nearly doubled. Middle East production trebled over this period, and so did Russian production; this year the Soviet Union will probably displace Venezuela as the second producing country of the world.

The pattern of trade in oil may be influenced by political considerations; and in some countries, for example the United States and France, protective policies are likely to be important. But, apart from this, the reserve position and production costs of each area, together with technical and quality considerations,⁽²⁾ are likely largely to determine how the rising demand for oil in the 1960s is divided between the different producing areas. The production : reserve ratio gives some indication of the reserve strength of a producing region, and the average production per well (although it can differ a good deal from field to field within each country) gives a rough idea of relative production costs. The Middle East has both the highest production : reserve ratio and the greatest output per well (table 2 and chart 1). At present, proved world oil reserves are equal to about 40 years' production at the 1959 rate, but this world average includes a production : reserve ratio of 12 years in the United States at one end of the scale and 108 years in the Middle East at the other; in between are Venezuela at 18 years, the Soviet Union at 30 years and Indonesia at 70 years. Similarly, the annual average production of each producing well is 600 tons in the United States, 3,300 tons in the Soviet Union, 7,600 tons in Indonesia, 15,500 tons in Venezuela, and 184,500 tons in the Middle East as a whole, rising to almost half a million tons per well in Iran and Iraq. Therefore although other considerations often supervene, it can be expected that the largest increase in output will be in the Middle East.

There is an additional reason for thinking this will be so. A large part of the reserves in the Middle East are located in geological structures from which they can be brought with comparatively small effort to the surface and to a point at deep water; this applies especially to the Persian Gulf area. In other areas,

⁽¹⁾The per capita consumption of energy in 1958 in terms of coal equivalent was in the United States 7.5 tons, in the OEEC countries 2.5 tons, and in the Soviet Union 2.8 tons. The corresponding figures for oil were 3.1 tons, 0.6 tons and 0.7 tons respectively.

⁽²⁾Quality of crude oils is determined by two main criteria : (a) the yields of finished products and (b) ease of refining (for instance, absence of sulphur). In markets where petrol requirements are comparatively large light crudes are in greatest demand, whereas in markets with a high fuel oil demand, heavier crudes are more readily saleable.

Chart 1. Oil production, production : reserve ratio, and average production per well

COUNTRY OR AREA	PRODUCTION IN 1959	PRODUCTION : RESERVE RATIO, IN YEARS	AVERAGE PRODUCTION PER WELL
	■ = 10 million tons	■ = one year	■ = 1,000 tons
UNITED STATES			
VENEZUELA			
SOVIET UNION			
MIDDLE EAST			

Source : See table 1.

including most of North America, more and more costly well drilling is required for technical and other reasons, and the wells are often in comparatively inaccessible places.

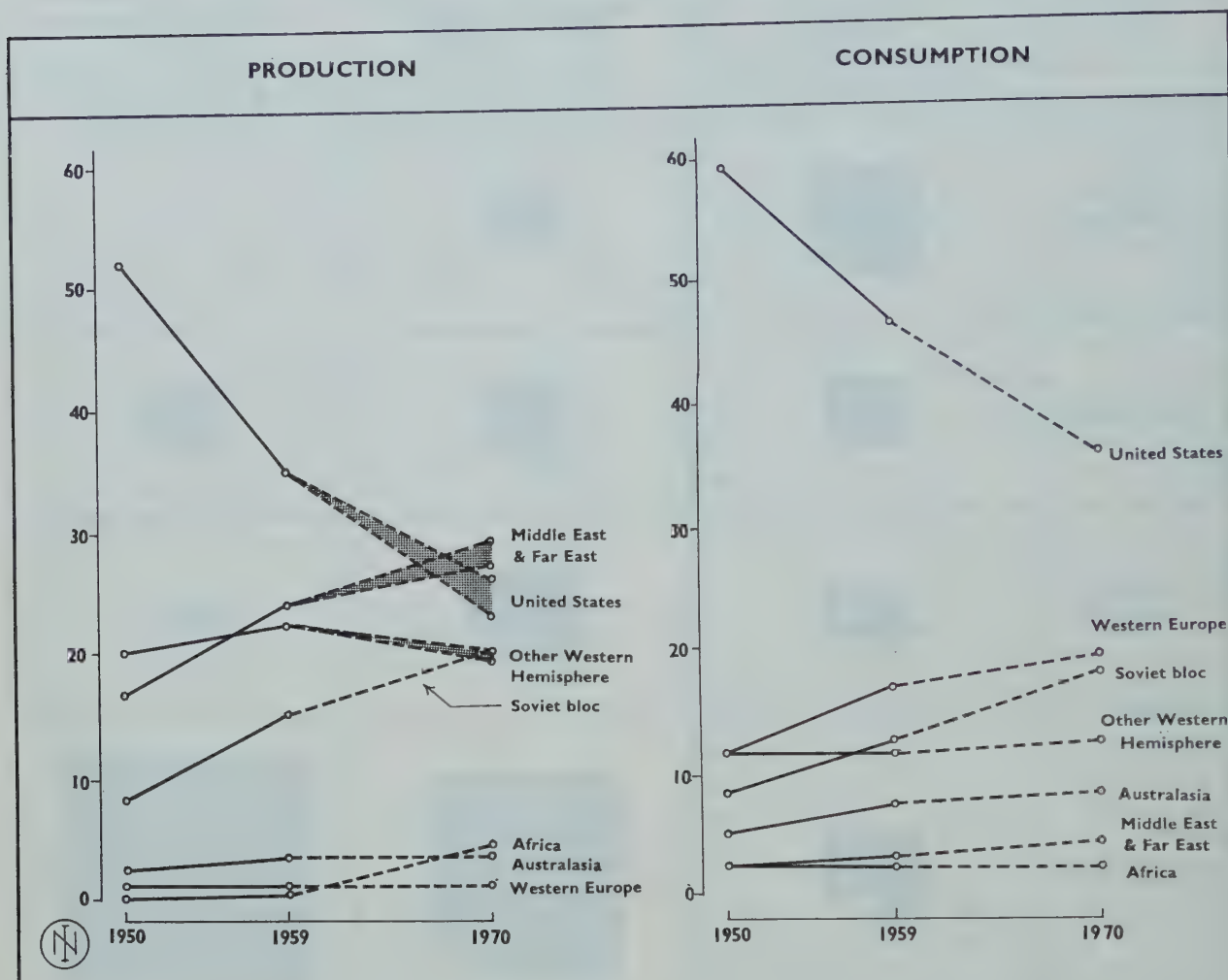
Some estimates of the possible trend of production in the different areas are given in table 3. The trend of crude oil production in the United States is particularly uncertain because it depends heavily on future protective policies and because of uncertainty about the size of the reserves which can be economically recovered. A range of figures is therefore given ; it is assumed that any shortfall from the higher figure would be met in the Middle East and Venezuela. Allowance has been made for an increase in exports

from the Soviet bloc to the rest of the world from 17 million tons in 1959 to 25 million tons in 1965 and 35 million tons in 1970.

Our estimates suggest that United States production is likely to rise at most by one-third during the next decade, and that of Latin America by about 50 per cent. On the other hand, Middle East production can be expected to double or more, reaching perhaps as much as 500 million tons by 1970 ; and production in the Soviet Union will, on the basis of present plans, be $2\frac{1}{2}$ times as great as today. African production—mainly in the Sahara and Libya—may, taking only present discoveries into account, amount to 70 million tons by that time (chart 2).

Chart 2. World oil production and consumption, 1950 and 1959, with estimates for 1970^(a)

Per cent of world total



Source : See table 1.

(a) For simplicity, three points only are plotted on these graphs. This does not mean that the trends were straight-line trends from 1950 to 1959, or that they are likely to be straight-line trends from 1959 to 1970 : see tables 2 and 3.

The role of the big companies

An analysis which covers only production and consumption trends in the different regions does not bring out the full complexities of the oil picture. It is not only the magnitude, the nature and the location of oil reserves which govern their impact on the market. It matters too who controls them. In the United States and in Canada, most of the actual and potential oil is in the hands of a large number of entrepreneurs, many of them operating on a small or medium scale and not involved in the subsequent phases of the oil industry (transport, refining, marketing). Because they are independent or 'non-integrated' it was found necessary to regulate their operations by governmental planning, that is, by rationing or 'prorating' their production. In the international sphere the need for such regulation did not arise in the post-war years because practically all

the oil was in the hands of a small number of large international companies engaged in all phases of production and distribution.

Table 4 shows the proved oil reserves which the eight biggest international oil companies hold in various areas, set against the grand total of reserves in the same areas.⁽¹⁾ Although the proportion of reserves in the hands of these companies is still formidable today, it was still greater ten years ago when for all practical purposes they controlled 100 per cent of the oil in the Middle East and about 95 per cent in Venezuela. This explains why, until recently, these companies were in a position to limit

⁽¹⁾The value of a company's business cannot be deduced from the size of its proven reserves alone. A great deal depends on where the reserves are, and whether they are concentrated in one area or not. Further, the standing of a company in refining and marketing affects the realisation of the potential assets which these reserves represent.

Table 3. World crude oil production, 1950–1959, with estimates for 1965 and 1970^(a)

<i>Million tons</i>					
	1950	1955	1959	1965	1970
				<i>Estimates</i>	
United States ..	267	328	341	400	400–450
Canada ..	4	17	25	42	60
Venezuela ..	79	111	145	175	200–220
Other Western Hemisphere ..	22	30	41	62	80
Total Western Hemisphere ..	372	486	552	679	760–790
Middle East ^(b) ..	87	160	226	322	471–501
Africa ..	—	—	3	45	70
Western Europe ..	4	9	13	19	24
Asia ..	12	18	24	35	45
Total Eastern Hemisphere ..	103	187	266	421	610–640
Soviet bloc ..	43	83	144	260	350
Total world ..	518	756	962	1,360	1,750

Source : See table 1.

(a) Excluding natural gas liquids.

(b) Including Egypt.

the development of reserves to a rate which would not upset the market : as there were few of them and most of them had much to lose if they expanded too fast, the 'collective common sense of the several competitors' could make itself felt. This general disposition of the companies, a considerable degree of marginal competition notwithstanding, had two main results.

First, with all the international companies engaged in the Middle East, and about half of them also controlling almost all Venezuelan production, the quantities drawn from each of the producing countries settled into a workable pattern. The pattern tended to be determined by the respective market share of each of the companies in the consuming countries. In the aggregate these shares tended to remain reasonably constant. Thus there emerged, although it was never explicitly established, a pattern of supplies from producing countries which was considered generally acceptable. It tended to be re-established even after the violent upheaval following the Iranian nationalisation under Mossadeq's regime and after the interruption of the Iraq pipelines in the course of the Suez crisis.

Secondly, these conditions permitted a price policy which made crude oil production in Venezuela and in the Middle East exceedingly profitable. The world

Table 4. Location of the gross crude oil reserves of eight major international oil companies, end-1958^(a)*Million tons*

	United States	Other Western Hemisphere	Eastern Hemisphere ^(b)	Total ^(b)	
				excluding United States	including United States
Gulf Oil	225	125	4,350	4,475	4,700 ^(c)
Standard Oil (New Jersey)	515	1,480	2,685	4,165	4,680
Texaco	305	185	2,350	2,535	2,840
Standard Oil (California)	250	70	2,350	2,420	2,670
Socony Mobil	175	70	1,410	1,480	1,655
British Petroleum	—	—	6,670	6,670	6,670
Royal Dutch-Shell	145	620	1,635	2,255	2,400 ^(c)
Cie. Francaise des Petroles	—	—	1,275	1,275	1,275
Total, eight major companies	1,615	2,550	22,725	25,275	26,890
Total reserves of area	4,870	3,590	25,385	28,975	33,845
Eight major companies : per cent of total reserves	33.2	71.0	89.5	87.2	79.5

Source : See table 1.

(a) Including natural gas liquids.

(b) Excluding Soviet bloc.

(c) All the reserves attributable to Gulf's 50 per cent share in the Kuwait concession are included under Gulf Oil. Royal Dutch-Shell, however, has long-term supply contracts for a substantial part of Gulf's Kuwait production, and so has a special relationship to these reserves.

market prices to which the newer oil regions were geared were those set by the United States—a high-cost area with government-sponsored price maintenance. It was considered to be in the interest of the United States authorities as well as of companies involved in the American oil business not to displace domestic oil too quickly with cheaper foreign oil. Had the prices for foreign oil been significantly lower, the substitution process would have been greatly accelerated, especially during the period before the mandatory import restrictions. Furthermore, although the companies did compete, essentially they did not compete on price; their prices were geared to the level of high-cost crude oils without direct reference to their own lower costs.

New entrants

This state of affairs persisted until about two years ago; since then the market has become less favourable to producers. Such a change of fortune was inevitable. The rapid increase in the volume of business, together with the high margins to which oil companies, the governments of producer countries, and shareholders had grown accustomed, could not have continued indefinitely. The very magnitude of the margins earned in Venezuela and the Middle East gave rise to claims by producer governments for bigger and yet bigger shares in them, and it has encouraged other enterprises—private or government-backed—to enter the field: the French Government promoted, with considerable success, the search for oil in North Africa, through a complex mixture of public, private and mixed companies, combined with various forms of financial aid. In Italy the state-owned ENI (*Ente Nazionale Idrocarburi*) bids fair to become an international oil enterprise; in Venezuela and Libya medium-sized (mostly American) companies have found a good deal of oil which is expected to have low cost. The advent of the newcomers, who are inevitably in more of a hurry than are well-established companies, has introduced more intense competition.

The concomitant of the big companies' control of crude oil supplies was a virtually complete control of sales outlets, most noticeable with motor fuels—petrol and diesel oil. Such control is unusually complete in Britain. Before the war the smaller companies in Britain hung on precariously to about 10 per cent of the market and in doing so kept petrol prices in Britain rather low. When the war-time Petroleum Board was dissolved in 1948 they were faced by a tanker shortage⁽¹⁾ and by conditions in which their only potential suppliers were their competitors, the integrated companies. The result was that the

independent marketers were bought up and the British oil market became the exclusive preserve of the big companies—an island without any beachhead from which an invasion could be mounted.

Similar operations, though not on as full a scale as in Britain, took place in several other countries. Indeed the great strength of the international oil companies lies in the fact that petrol can be sold only through service stations and, where the companies have 'tied' practically all of them, any newcomer, if he wants to appear on the market at all, has first to invest in new outlets. (There are similar, though smaller, difficulties with oil for industry and domestic heating, where handling and storage facilities are the scarce factors.) It is the size of this entrance fee which has until recently discouraged would-be new entrants to the British market. In markets in which outlets are not so generally controlled by integrated companies there has recently been a rash of unbranded stations. They undercut the 'official' prices and are ready to be taken over—at a price—by oil companies not yet operating in the country. This tends to depress prices, since the big companies have to lower their prices if the newcomers undercut them too far or take too much business away from them. The international oil companies face a predicament. The traditional overall margins, established at a time of virtual control of crude supply and of outlets by like-minded operators, are worth trying to preserve. But to maintain them now is to make the contenders' target more attractive. Moreover, the presence of smaller competitors tends to make the big networks fight one another more vigorously (even by price competition) than they would do otherwise. More often than not even a small addition of independent competition provokes a general dissolution of the price structure.

Of all the elements which go to make up the strength of international oil companies, the 'power of disposal' is, at a time of ample supply, as important as is the control of reserves and supplies at a time of scarcity. The fact that there were no takers for Dr. Mossadeq's oil, because virtually all outlets were pre-empted, proved what this power of disposal meant. Yet with hindsight, one can now see that Dr. Mossadeq failed mainly because he did not see that to succeed he had to confront the big oil companies with some other units equally big. Being head of a government himself, he should have seen that he could succeed only through cooperation with other governments. Indeed, that is what, in their own different ways, Sojusneftexport and the Italian ENI are now doing. The Russians, whilst selling to small buyers wherever they can, know that this will not get them far. They therefore use their purchasing power as a bargaining counter and (as in Cuba) make use of political

⁽¹⁾Spot charter rates, which the independents would have had to pay, were then much higher than the average rates for the tonnage available to major companies.

opportunities to persuade governments to make the established refiners and distributors handle Russian oil. This has happened in Iceland—though the fact has attracted little attention. A similar request in Cuba was refused, and resulted in confiscation. In India, where the problem has recently come to a head, the oil companies have retained the right to use their own crude oil in their refineries—for the time being at any rate—at the cost of a price concession. The Russians, however, are not the only people to try to capture markets by way of governmental preference. ENI has made similar deals in Morocco and elsewhere. It is obvious that incursions into their world-wide network of markets are a serious threat to the oil companies: any weakening of their power of disposal must seriously prejudice their hold on their best concessions.

The attitude of producer countries

The governments of producer countries have shown growing concern at the pressure on profits caused by the changes in the competitive position. Although they insist that any reduction of the official, posted, prices could be due only to the malice of oil companies, it is clear from their statements that they have now become aware of the relationship of quantity supplied to the price at which it can be sold. Having been wont to press their respective concessionaires for increases in the offtake, some of them have now veered around and have said that they prefer to maintain their price or 'take' per barrel rather than increase output beyond the normal increase in general oil demand. Whereas such a policy would appear to be rational for Venezuela, where it was first mooted, its adoption by Middle East countries is more surprising. Being the lowest cost producers they might have expected that if free competition became world wide they could gain more from increased sales at the expense of high cost producers than they would lose through a lower price. A world-wide free-for-all is, however, unlikely. No doubt recognising that, some governmental experts in Saudi-Arabia have recently taken up the Venezuelan cue and have worked out a programme for an international agreement to balance oil supply and demand. The project, which was put forward in May 1960 by Sheikh Tariki, Saudi Arabian Director-General of Petroleum and Mineral Affairs, consists of a plan for the market to be shared amongst the exporting countries by inter-governmental agreement. The main criterion for allocation would be the proven reserves of each country (which would favour the Middle East) with at least temporary allowance for existing market positions (designed to safeguard Venezuelan interests).

The underlying object of such an agreement would be to replace the old invisible pattern of supply

regulation by companies. Inasmuch as it would lead to price stability by way of 'orderly marketing' the scheme should not be repugnant to the companies. What has angered them is that under the label 'proration', borrowed from America, the governments propose to take to themselves the power to regulate supplies, thus invalidating the companies' power of disposal. This would in fact remove what little elbow room is now left to the companies to draw rather more from lower-cost areas and to keep over-acquisitive governments in check by the spectre of a reduction in offtake.

The proposal raises all the difficulties common to schemes to stabilise primary commodity markets. Moreover since it is essentially a producers' scheme it is open to all the objections to a cartel. The example of American practice, implicit in the use of the word 'prorating', is misleading, for there no international conflicts arise and in the main producing area a single public body—the Texas Railroad Commission—sets quotas. Further, even in the United States it is difficult to get an official control which covers more than one state: the Interstate Oil Compact is no more than a loose co-ordinating body with no effective power.

The proponents of the Tariki Plan—who are to be found in Venezuela as well as in the Middle East—have clearly under-estimated the difficulty of assembling and holding together a cartel-like structure containing competitors of different size, stature, background and interests. Yet they have a case and can probably draw together sufficiently closely to achieve considerable bargaining strength despite the world oil surplus. For this reason, it is probably true that the oil companies can hope to play their role of regulating the international market only in co-operation with governments, not against them.

The interest of consumer countries

The high level of taxation on petrol in most countries, and on fuel oil in some, means that sizeable changes in oil prices do not have much effect on prices paid by consumers. For this reason the conflicts between consumer and producer tend to be mainly on a national level—as a conflict between consumer countries and their suppliers. What a country pays for oil not only influences the cost of energy but also its foreign payments.⁽¹⁾ The interests of different countries are complex. Britain, for instance, is the

⁽¹⁾There is also a tax problem: with crude oil prices more effectively controlled than prices of petroleum products, profits of the oil companies' affiliates in the consumer countries are now small, if indeed there are any at all. Under the present arrangements even in the countries where the parent companies are domiciled (the United States, Britain, the Netherlands and France), tax revenue from the oil companies is relatively small.

biggest consumer of oil in Europe and has hardly any indigenous supplies. She should therefore be interested in low oil prices. On the other hand she is the home country of two of the big international oil companies⁽¹⁾ which, leaving the United States and the Soviet Union aside, produce almost 30 per cent of the world's crude oil. In fact oil supplies to Britain and the sterling area by non-British companies are smaller than the supply by British companies to other countries. Consequently British consuming interests seem in the past to have been outweighed by British producing interests. The future will obviously depend not only on the trends in world trade in oil but on the profit margin of the companies' operations; any compression of these margins (which is now occurring) may tilt the balance and bring the consuming interests to the fore. Since the foreign exchange income from oil operations is unknown (being concealed in the balance of payments statistics) it is impossible for the outsider to judge the relative importance of Britain's consuming and producing interests.

The French position, always affected by their producing interests in Iraq, has in recent years become more definitely producer-orientated, due first to their participation in the Iranian Consortium formed in 1954, and, lately and decisively, to their successes in North and West Africa.

In some other countries such as Federal Germany and Belgium, low oil prices are not altogether welcome as they upset the market for indigenous coal—an argument which in Britain now adds weight to other considerations. Countries without a big stake in international oil, however, and without substantial indigenous sources of energy, such as Italy and most non-European countries, have a straight interest in low oil prices and are enjoying the full benefit of ample supplies; if the latent competitive pressures should turn into a war of movement, they are the countries most likely to welcome it. They can also probably be relied upon to provide countervailing power to any attempt to corner the oil market; given the present oil surplus, it would be possible for them, by offering exclusive access to their markets, to tempt one or other of the producing countries to stay out of a producer combine.

Summary

The present problem of the oil industry is not so much the problem of a surplus—there has usually been a surplus, in the sense that the industry could produce a great deal more crude oil than it did; the problem is that a period when the surplus was

effectively regulated has ended.

This problem has become acute in part of the world only. The United States and Soviet bloc markets are regulated, are largely self-sufficient, and are isolated from the rest of the world; the first is a marginal importer, the second a marginal exporter. But in the rest of the world, since the main producers (the Middle East countries) consume little oil and the main consumers (Western European countries) produce little oil, most of the oil crosses national boundaries and the difficulties of control are greater.

In the last decade there has been a shift in the oil industry from the Western to the Eastern Hemisphere. Oil demand, production and reserves have all risen relatively slowly in the United States, whereas in the Middle East production has risen nearly threefold and reserves nearly fivefold. The Middle East producers have the advantage, not only of big reserves, but of lower costs (of which their extremely high output-per-well is evidence) and of a favourable location: a good deal of their oil is very near deep water. Apart from political considerations and protectionist policies, it can be expected that a good part of the future increase in demand will be met from the Middle East.

Up to a few years ago, the big companies controlled so large a part of the output of oil outside the United States and the Soviet bloc that they were able to develop the reserves at a rate which did not upset the market. The pattern of production was determined by the market share of the companies in the consuming countries. Since the price of Middle Eastern and Venezuelan oil was linked to the high price of oil in the United States, this made crude oil production in these areas exceedingly profitable.

Recently, other enterprises—private or government-backed—have entered the field of crude oil production; further, they have in some countries (not Britain) succeeded in establishing enough outlets to cut into the big companies' control of marketing facilities. Some of the new entrants—the Soviet Union and others—have done this by government-to-government negotiations. It is this threat to their 'power of disposal' which is perhaps the big companies' main danger.

Faced with the dissolution of the present structure, proposals have been made by some of the Middle East countries for the international regulation of oil supplies by producing countries. The interest of consuming countries varies, depending mainly on the importance of the coal industry in their economies and on their interest in the oil industry. Hitherto Britain, the home country of two major companies, has shown more interest in high oil profits than in low oil prices, but, with the advent of more competitive conditions, the country's consumer interest may be roused.

⁽¹⁾They are the British Petroleum Company and the Shell Group; the latter incorporates substantial Dutch interests, but that does not invalidate the argument put forward; indeed the considerations relevant to British interests apply similarly to those of the Netherlands.

Conclusion

Present trends suggest that competitive pressures are likely to persist in the 'sixties. That, together with encroachment by governments, mean that profit margins in the oil industry are likely to be squeezed. A continuing rapid rise in oil consumption can be expected, however, especially in Europe, the Soviet Union and the newly developing continents. After 1970, what happens will depend on oil discoveries—whether more big new fields are found—and on the developments in other fuel industries.

This squeeze on margins is likely to mean, first, that the oil companies will not be able to finance so much of their investment from retained earnings and will have to borrow more ; although their expenditure on exploration will fall, it will probably not fall enough for them to avoid having to do this. Secondly, costs will matter more. High-cost operators are unlikely to earn an adequate return on their investment ; low-cost operators will find that the post-war period of very large profits has given way to a period of more modest returns.

The big international companies in particular face a difficult period. The fact that they are international

—indeed, ubiquitous—gives them considerable economic advantages : they can spread their risks, and shift profits to spheres where it is most advantageous to earn them. But their ubiquity puts them in a difficult position when international relations are strained. Further, new companies are coming into the oil business, some of them (such as the Japanese companies) seeking to develop their own supplies for their own home market. Some of these newcomers may not have the finance for wide-spread exploration ; but at the moment exploration is less important than it was in the 1950s. The international companies have been almost too successful in discovering oil, and their pioneering and risk-taking role now fails to secure for them the paramount position they used to hold.

The fact that international oil was for a long stretch of its history almost an American and British preserve was an historical accident. The Americans were the first to have a persistent oil surplus ; the British had no oil but were the first to obtain command of oil abroad. A change was bound to come. The two countries could not hope that they should for ever be purveyors to the world of oil which they find and develop in countries which are not their own.

ENERGY AND EXPANSION

This article is summarised on page 36

Introduction

Few industries can have had such a reversal of expectations in so short a time as the coal industry. In April 1956 the National Coal Board, looking at the prospects for the next ten years, could say confidently: 'Even in the longer term, the problem of over-production for the coal industry can scarcely arise'.⁽¹⁾ Over the next four years, total coal production fell 7 per cent, and coal stocks more than doubled.

The reasons for this change are not simply that oil has been substituted for coal and that industrial production in recent years has been rising more slowly. The average temperature has made a difference; the change in the pattern of national output has altered the demand for energy; sales of gas and coke have fallen sharply in the last few years; and there has been a big improvement, particularly since 1956, in the efficiency with which fuel is used. These and other changes have been sufficient to alter the whole relationship between the rise in national output and the rise in energy consumption. This article attempts to put into figures the relative importance of these changes over the last decade, both for coal and for total energy; it looks at some of the possible consequences for the future. The sources and methods used in the article are described in an appendix.

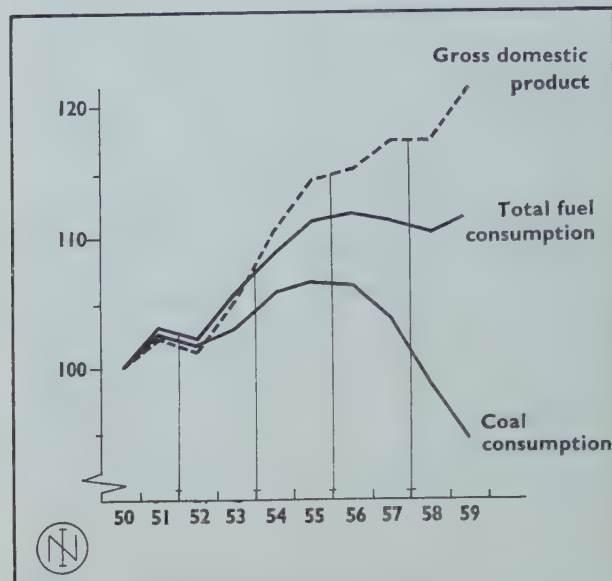
Total demand for energy

The main problem to explain is the apparent change in the trend of energy consumption after 1956 (table 1 and chart 1). In the first six years of the decade there was a fairly steady rise in total energy consumption of 4.5 million tons a year, in terms of coal equivalent. Then from 1956 to 1959 energy consumption fell by 2½ million tons a year.

National output certainly rose more slowly in the second period than in the first; but this is only a small part of the explanation. If energy consumption had risen in the same proportion as national output throughout the decade, it would have gone up 5½ million tons a year from 1950 to 1956 and 4½ million tons a year from 1956 to 1959—a difference of 1 million tons. The slowing down in the rise in national output explains only about one-seventh of the change.

Chart 1. Energy and national output

Index numbers, 1950 = 100^(a)



Source: See Appendix to article.

(a) Gross domestic product is at 1954 factor cost. Consumption of fuel and of coal are corrected for changes in average annual temperature.

Temperature differences were more important than variations in production: in both 1957 and 1959 the average annual temperature in Britain was well above normal. If the trend in energy consumption is roughly corrected for temperature changes, it stays about flat from 1956 to 1959 instead of falling. But this still leaves a large part of the change unexplained.

With the effects of production and of the temperature change eliminated, the other possible explanations of the change in trend are that the pattern of output has changed in such a way as to reduce fuel consumption, or that fuel is being used more efficiently than it used to be. It is not always possible to disentangle these two factors. The only way to measure the increase in fuel efficiency in industry is to compare the increase in fuel input with the increase in the industry's output. For some sectors there are no good output measures. There is no way of measuring the output of domestic fuel consumption, for instance. When corrected for temperature changes, domestic consumption had a slow upward trend over the decade of rather less than 1 per cent a year. It tended therefore to pull down the trend of total fuel consumption related to output. But this effect was, as it happens, more marked from 1950 to 1956 than from 1957 to 1959 (table 1, part 2); it does not explain the change in trend after 1956.

This article was prepared by G. F. Ray and F. T. Blackaby of the National Institute.

⁽¹⁾ *Investing in Coal*, National Coal Board, April 1956, page 13.

Table 1. Changes in total fuel consumption, 1950 to 1959

+ : indicates a factor increasing fuel consumption
 - : indicates a factor reducing it

Annual changes, or average annual changes, million tons, coal equivalent

	Consumption in 1959 ^(a)	Average 1950-54	Average 1954-56	Average 1956-59	1957	1958	1959	Average 1950-59
Part 1. Changes in total fuel consumption								
(1) Total fuel consumption, if it had risen in the same proportion as GDP ..		+5.68	+5.60	+4.50	+4.5	—	+9.0	+5.27
(2) Actual rise in fuel consumption ..	246.0	+5.30	+4.02	-2.70	-7.3	+1.5	-2.3	+2.36
(3) Actual rise, corrected for temperature changes	250.7	+5.00	+3.30	-0.10	-1.6	-1.8	+3.1	+2.92
(4) Difference to be explained : (1)-(3) ..		-0.68	-2.30	-4.60	-6.1	-1.8	-5.9	-2.35
Part 2. Domestic consumption, road transport, agriculture and miscellaneous : difference between actual rise in consumption,^(b) and rise in proportion to GDP								
(1) Domestic consumption	68.4	-1.17	-1.00	—	-0.3	+1.4	-1.1	-0.74
(2) Road transport	16.3	+0.40	+0.90	+0.73	+0.6	+0.9	+0.7	+0.62
(3) Agriculture	3.1	+0.05	-0.15	-0.07	—	+0.3	-0.5	-0.03
(4) Miscellaneous uses	33.8	-0.35	-1.35	+0.47	+0.3	+0.1	+1.0	-0.30
Total	121.6	-1.07	-1.60	+1.13	+0.6	+2.7	+0.1	-0.45
Part 3. The effect of changes in the pattern of output								
(1) Decline in collieries and railways ^(c) ..	19.9	-0.45	-0.70	-0.77	+0.1	-1.2	-1.2	-0.61
(2) Rise in air transport ^(c)	2.8	+0.18	+0.45	+0.30	+0.4	+0.1	+0.4	+0.28
(3) Expansion of manufacturing ^(c) ..	101.2	+0.82	+0.70	+0.76	+0.1	-1.2	-3.2	+0.76
(4) Changes within manufacturing ..		+0.05	+0.60	-1.23	-0.2	-2.9	-0.6	-0.26
Total	123.9	+0.60	+1.05	-1.00	+0.4	-5.2	+1.8	+0.17
Part 4. Changes in fuel efficiency								
(1) Collieries	8.4	-0.23	-0.45	-0.53	-0.7	-0.3	-0.6	-0.38
(2) Railways	11.5	-0.33	-0.35	-0.60	-1.0	—	-0.8	-0.42
(3) Air transport	2.8	+0.25	-0.20	-0.20	-0.1	-0.1	-0.4	—
(4) Iron and steel	29.6	-0.23	-0.90	-0.93	-0.1	—	-2.7	-0.61
(5) Engineering	14.5	-0.08	-0.05	+0.03	-0.2	+0.5	-0.2	-0.03
(6) Food, drink, tobacco	6.7	—	-0.15	+0.13	+0.3	-0.1	+0.2	+0.01
(7) Chemicals	14.4	+0.10	-0.20	-0.53	-0.4	-0.1	-1.1	-0.18
(8) Textiles, leather, clothing	8.2	—	—	-0.13	-0.2	+0.1	-0.3	-0.04
(9) Paper, printing	6.7	+0.05	-0.20	-0.13	-0.3	—	-0.1	-0.07
(10) Bricks, cement, glass, etc.	11.1	-0.03	+0.05	-0.40	-0.4	-0.4	-0.4	-0.13
(11) Other industries (including construction)	10.0	-0.15	-0.10	-0.17	—	-0.2	-0.3	-0.14
Total manufacturing, (4) to (11)	101.2	-0.33	-1.55	-2.13	-1.3	-0.2	-4.9	-1.20
Total (1) to (11)	123.9	-0.63	-2.55	-3.46	-3.1	-0.6	-6.7	-2.00
Part 5. Electricity : changes in fuel efficiency								
(1) Included in part 2	26.7	-0.37	-0.40	-0.30	-0.3	-0.4	-0.2	-0.36
(2) Included in part 4	27.0	-0.40	-0.45	-0.37	-0.4	-0.4	-0.4	-0.40
Difference to be explained (part 1, (4)) ..		-0.68	-2.30	-4.60	-6.1	-1.8	-5.9	-2.35
Total, parts 2 to 4		-1.10	-3.10	-3.33	-2.1	-3.1	-4.8	-2.28
Unexplained residual		+0.42	+0.80	-1.27	-4.0	+1.3	-1.1	-0.07

Source : See Appendix to article. GDP = Gross domestic product, at factor cost, at constant (1954) prices.

(a) Adjusted for temperature, except for 246 million tons in part 1, (2). The figures in parts 2 and 3 do not add up to total consumption because they exclude refinery fuel. (b) Adjusted for temperature. (c) Relative to the movement of GDP.

There is no good measure of output for road transport either, over the decade as a whole.⁽¹⁾ Increasing use of road in place of rail transport has tended to make fuel consumption rise faster than national output. This more or less offsets the relatively slow rise in domestic consumption.

In two other sectors, it is not possible to use an output index to distinguish between the pattern and the efficiency effects. There is no output figure which corresponds to miscellaneous fuel consumption; and in agriculture, year-to-year changes in output depend much more on weather than on the amount of work done by farmers; to divide the increase in fuel consumption by an output index does not give sensible results for short periods. In both these sectors, fuel consumption rose more slowly than national output: but the effect is small (table 1, part 2).

Taking these four sectors together, fuel consumption rose a little more slowly than national output in the years up to 1956, by about 1 million tons a year, but a little faster than national output in the period 1956 to 1959, also by about 1 million tons a year. So they do not help to explain the change in trend since 1956.

Changes in the pattern of national output

In manufacturing industry, and in collieries, railways and air transport there are usable output figures:⁽²⁾ so an estimate can be made of the effect of the change in the pattern of output on fuel consumption. The figures (table 1, part 3) show the difference which would have been made to fuel consumption in each year if output in each sector had risen in the same proportion as national output. No hypothetical calculation of this kind can be precise, of course; in this analysis, it is assumed that, within each sector, the average fuel efficiency in each year would not have been changed by the different movements of production. For manufacturing industry this pattern effect is divided into two: first, the change in pattern within manufacturing industry itself, and secondly the change in pattern as between manufacturing industry and the rest of the economy.⁽³⁾

⁽¹⁾There is now an index of vehicle miles travelled on roads in Great Britain; it begins, however, only in 1958. It is not satisfactory to use the number of vehicles registered as a measure of output, since there is reason to think that the number of miles travelled by the average vehicle each year has been falling.

⁽²⁾See the appendix to this article, page 38, for a description of the indices used.

⁽³⁾For the change in pattern in manufacturing industry itself, the figures show the difference in fuel consumption which there would have been if, in each industry, production had moved in the same proportion as the total index of manufacturing production. For the change in pattern between manufacturing industry and the rest of the economy, the figures show the difference that would have been made if the index of manufacturing production had moved in the same proportion as the index of national output.

In general, these changes in pattern help a little, but only a little, to explain the change in trend of fuel consumption since 1956. The pattern changes within manufacturing industry tended to increase fuel consumption in the years up to 1956: but in each of the years 1957 to 1959 they reduced it. In 1957 the main reason for this was the fall in brick and cement production, and in 1958 the fall in steel output; in 1959 steel output did not rise as fast as manufacturing production as a whole. Further, output in collieries and railways fell faster from 1957 to 1959 than in previous years. Throughout the period, manufacturing production rose faster than national output: but the effect of this was fairly uniform. Taking all the pattern changes together, their net effect up to 1956 was to increase fuel consumption by about $\frac{3}{4}$ million tons a year and from 1957 onwards to decrease it by about 1 million tons a year. This net effect can change a good deal from year to year, according to the fortunes of the big fuel-using industries such as the steel and brick industries.

Efficiency

Fuel efficiency is measured here by comparing changes in energy consumption, corrected for temperature, with changes in the volume of output. The figures (table 1, part 4) show, for each fuel-using sector for which good output figures exist, the difference between the actual changes in fuel consumption and changes that would have resulted if fuel consumption had moved in the same proportion as output in that sector. There are a number of factors at work here, some of which have little to do with fuel efficiency in the technical sense. First, when production increases in a factory, there is no reason to expect the amount of fuel used for heating to rise; part of the fuel used in industry is, in fact, an overhead. Secondly, the fuel consumption figures include both electricity and oil, which have been substituted for coal throughout the decade. Usually when a firm changes to a different fuel, it installs more modern equipment and saves fuel in that way. Indeed, it generally would not change unless it did get some economy. Thirdly, electricity is valued in these calculations according to the amount of coal needed to make it; and there has been a big increase in the efficiency with which coal is converted into electricity. (Electricity's contribution to the increase in efficiency in industry is shown separately at the bottom of the table.) Fourthly, more efficient use has been made of boilers and other equipment, by means of better stoking, insulation and so on. There was great scope for this throughout the period. Finally, there is one factor which works in the opposite direction. If an industry is mechanising and substituting power and capital equipment for labour, it is quite possible that

the input of fuel per unit of output will rise. This does not mean that it is using fuel inefficiently; it is simply substituting power for muscle. Over the decade this must have happened, for instance, in agriculture: output rose 15 per cent, fuel consumption 20 per cent.

Total improvements in efficiency—so far as they can be calculated—were in fact much bigger in the period 1956-59 than in previous years. From 1950 to 1956 they account for a saving of $1\frac{1}{4}$ million tons a year; from 1956 to 1959, for $3\frac{1}{2}$ million tons a year; and in 1959 alone for 6.7 million tons. Throughout the period (apart from the savings in the electricity industry, discussed later) the big economies have been made in five industry groups: iron and steel, railways, collieries, chemicals, and bricks, cement, glass, etc. Between them they account for 60 per cent of the total fuel consumption in the industries for which efficiency figures can be calculated, but explain some 85 per cent of the calculated improvement in efficiency. In fact, improved fuel saving in these industries explains much of the change in trend of total fuel consumption.

In these calculations, each sector's consumption of electricity is valued by the coal used to make it, which has been falling year by year; hence the fuel saving of power stations is attributed to the various electricity users; some of it is included in the figures for domestic and miscellaneous consumption (table 1, part 2), and some in the figures of industrial fuel efficiency (table 1, part 4). These improvements in efficiency at power stations are also shown separately (table 1, part 5); over the period as a whole, the electricity industry ranks second only to the iron and steel industry in the amount of fuel it saved; but there has been no acceleration in its rate of saving in recent years.

Total energy and national output: summary

Over the whole period 1950 to 1959 energy consumption, corrected for temperature changes, rose not much more than half as fast as national output. If it had risen as fast as national output, it would have gone up 5.3 million tons a year; in fact it rose 2.4 million tons a year. The main explanation of the difference is improved efficiency—falling fuel input in relation to output. Industrial efficiency improved by 2 million tons a year (of which a fifth is the effect of higher efficiency in the electricity industry). Domestic and miscellaneous consumption rose more slowly than national output; improved efficiency in electricity accounts for some of this as well. The trend in activity in collieries and railways tended to reduce fuel consumption. On the other hand, the increased use of road transport and the increased importance of manufacturing industry in the national economy

tended to raise it.

The divergence between the movements of energy consumption and national output was particularly marked from 1956 onwards. The change in trend after 1956, so far as it can be identified, was due partly to temperature and partly to an increase in the rate of improvement in efficiency in industry, particularly in 1959. Other changes more or less cancelled out; the change in the pattern of production reduced fuel consumption, but on the other hand domestic consumption from 1956 on was rising as fast as national output, whereas previously it had been rising more slowly. (The methods of calculation used, although they provide a reasonably good explanation of the change over the period as a whole, are less reliable for year-to-year changes; this is probably because year-to-year changes in many of the elements in the calculation are not known accurately enough.)

Inter-industry efficiency comparisons

For comparing the rates of improvement of efficiency in various industries, it is perhaps more useful to exclude the electricity industry's fuel efficiency savings from the figures for other industries. This is done in the set of charts on page 30, where the consumption of electricity in each industry is valued by the fuel used to produce it in 1950. The industries are ranked according to the rate at which efficiency improved.

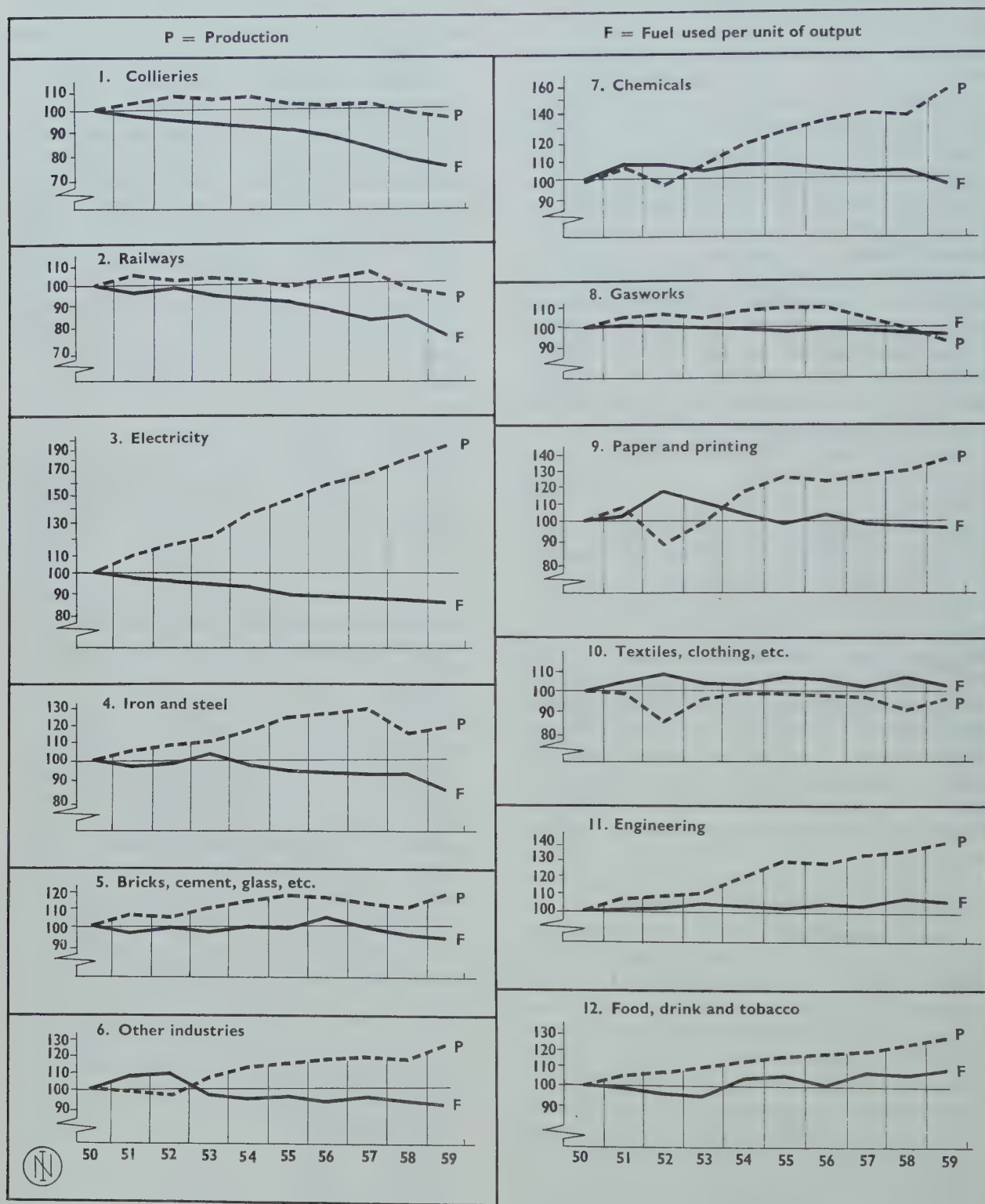
Collieries show the most remarkable advance; to produce a ton of coal now takes less than three-quarters as much fuel as was needed ten years ago. There have also been very big economies on the railways. This is not explained by the switch to oil; oil consumption in 1959 was still only 2 per cent of the railways' total use of fuel. Electricity ranks third in the comparison of the rates at which efficiency has improved: there is a long-term trend here (chart 3). From 1920 to 1930 the amount of electricity generated per ton of fuel nearly doubled; in the following decade it rose one-third; between 1930 and 1940 there was hardly any improvement; and in the last decade it has increased one-fifth. This trend of improvement will probably go on; there is still a substantial gap (of 16 per cent) between the average thermal efficiency of all power stations and that of the twenty most efficient ones (table 2).

Two other industries are big consumers of fuel and have shown substantial savings. The iron and steel industry has reduced the amount of fuel needed, per ton of steel, by more than a tenth in the last decade⁽¹⁾;

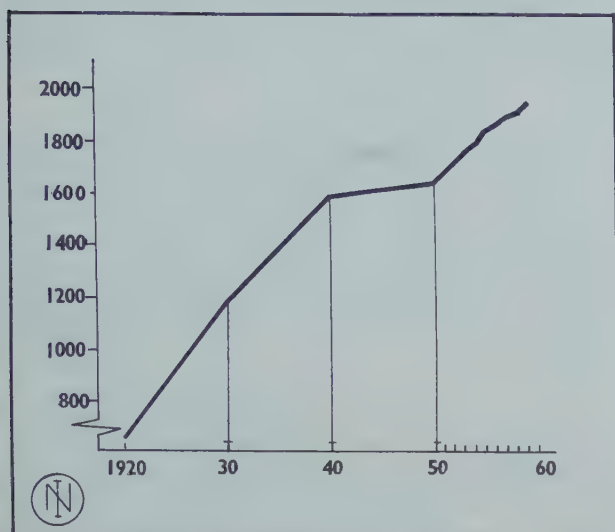
⁽¹⁾The consumption of coke per ton of pig iron produced in blast furnaces has fallen from 0.99 tons in 1956 to 0.95, 0.90 and 0.84 in the three subsequent years (*Economic Trends*, June 1960.)

Chart 2. Fuel efficiency and production

Index numbers, 1950=100



Source, methods and definitions: See Appendix to article.

Chart 3. Electricity generated per ton of fuel used.*Kilowatt-hours per ton of fuel used*

Source : Ministry of Power Statistical Digest 1959.

and the brick, cement and glass industries show something like the same rate of improvement.

All these industries are heavy fuel users and therefore they have had a big incentive to economise. Elsewhere in industry progress has been less dramatic, since fuel is a much lower percentage of total costs. In textiles, in engineering and in the food, drink and tobacco industries, the input of fuel per unit of output has, in fact, risen in the last ten years. This may, of course, be due to increased mechanisation and to the greater degree of processing in, for instance, the food industry. The charts show a general tendency for fuel efficiency to worsen in the years when production falls, and to improve again in years when production rises ; this is presumably because part of the use of fuel is an overhead.

The demand for coal

While the total demand for energy has been flat since 1956, the demand for coal has been falling. The

Table 2. Average thermal efficiency of power stations^(a)

	1958	1959
All stations ^(b)	26.0	26.4
Increase on previous year	0.6	0.4
The 20 most efficient stations	30.2	30.7
The most efficient station ^(c)	32.9	33.9

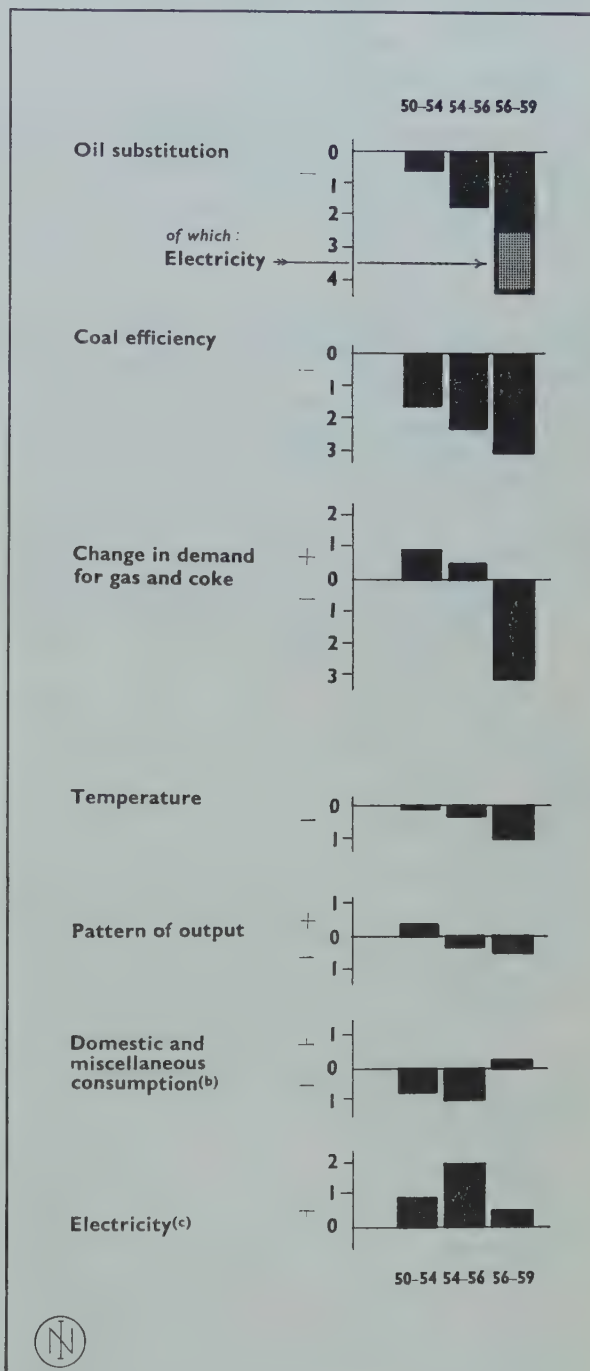
Source : Central Electricity Authority.

(a) Thermal efficiency is the total calorific value of the electricity sent out expressed as a percentage of the calorific value (gross as fired) of the total fuel consumed.

(b) Operated by the Central Electricity Generating Board.

(c) The figure for 1958 refers to the station Castle Donington, that for 1959 to the station Blyth A.

reasons for this fall are shown in full in table 3, and summed up in chart 4 and table 4 ; this summary table gives the main factors explaining why consumption of coal, instead of rising 4 million tons a year in line with national output, fell 9 million tons a year.

Chart 4. Main factors explaining why coal consumption rose more slowly than national output*Million tons, annual averages*

Source : Table 3.

(b) The effect of domestic and miscellaneous consumption moving differently from national output.

(c) The net effect of electricity demand rising faster than national output and of the substitution of electricity for coal. It does not include the effect of improvements in efficiency at power stations.

Table 3. Changes in coal consumption, 1950 to 1959

+ : indicates a factor increasing coal consumption

- : indicates a factor reducing it

Annual changes, or average annual changes, million tons

	Consumption in 1959 ^(a)	Average 1950-54	Average 1954-56	Average 1956-59	1957	1958	1959	Average 1950-59
Part 1. Changes in total coal consumption								
(1) Total coal consumption, if it had risen in the same proportion as GDP ..		+ 5.07	+ 5.05	+ 4.03	+ 4.0	—	+ 8.1	+ 4.70
(2) Actual rise in coal consumption ..	187.8	+ 3.03	+ 0.75	- 9.00	- 6.9	- 8.8	- 11.3	- 13.40
(3) Actual rise, corrected for temperature changes	189.6	+ 2.90	+ 0.40	- 7.93	- 4.5	- 10.1	- 9.2	- 11.40
(4) Difference to be explained : (1) - (4) ..		- 2.17	- 4.65	- 11.96	- 8.5	- 10.1	- 17.3	- 6.00
Part 2. Domestic and miscellaneous uses : the effect on coal of total fuel consumption in these uses moving differently from GDP								
(1) Domestic consumption	35.1	- 0.70	- 0.55	—	- 0.2	+ 0.7	- 0.6	- 0.43
(2) Miscellaneous uses	10.0	- 0.20	- 0.50	+ 0.13	+ 0.1	—	+ 0.3	- 0.14
Total	45.1	- 0.90	- 1.05	+ 0.13	- 0.1	+ 0.7	- 0.3	- 0.57
Part 3. The effect of changes in the pattern of output								
(1) Decline in collieries and railways ^(b) ..	15.1	- 0.03	- 0.55	- 0.53	+ 0.1	- 0.9	- 0.9	- 0.32
(2) Expansion of manufacturing ^(b) ..	35.1	+ 0.38	+ 0.30	+ 0.20	—	- 0.4	+ 1.1	+ 0.32
(3) Changes within manufacturing ..		—	- 0.05	- 0.23	- 0.3	- 0.4	—	- 0.09
Total	50.2	+ 0.35	- 0.30	- 0.56	- 0.2	- 1.7	+ 0.1	- 0.09
Part 4. The production of secondary energy^(c)								
(1) Electricity :								
(a) Pattern effect (electricity demand rising faster than GDP)	46.0	+ 1.85	+ 3.30	+ 2.18	+ 1.0	+ 3.9	+ 1.6	+ 2.28
(b) Substitution of electricity for coal ^(d) ..		- 0.98	- 1.45	- 1.74	- 1.4	- 1.5	- 2.3	- 1.33
(2) Gas : pattern effect	22.5	+ 0.48	- 0.35	- 1.73	- 1.8	- 0.9	- 0.5	- 0.78
(3) Coke : pattern effect	25.7	+ 0.37	+ 0.80	- 1.50	+ 1.0	- 2.8	- 2.7	- 0.16
Total	94.2	+ 1.72	+ 2.30	- 2.79	- 1.2	- 1.3	- 3.9	+ 0.01
Part 5. Oil substitution								
(1) Domestic	53.6	- 0.05	- 0.25	- 0.27	—	- 0.6	- 0.2	- 0.17
(2) Miscellaneous	9.7	- 0.10	- 0.60	- 0.60	- 0.3	- 0.8	- 0.7	- 0.38
(3) Railways	9.5	—	—	- 0.03	- 0.1	—	—	- 0.01
(4) Manufacturing industry ^(d)	34.8	- 0.43	- 0.90	- 1.43	- 0.1	- 2.4	- 1.8	- 0.87
(5) Gasworks	22.5	- 0.03	—	- 0.10	—	- 0.2	- 0.1	- 0.04
(6) Electricity	46.0	- 0.03	—	- 2.04	- 0.3	- 3.3	- 2.5	- 0.69
Total	156.1	- 0.63	- 1.75	- 4.47	- 0.8	- 7.3	- 5.3	- 2.16
Part 6. Changes in coal efficiency								
(1) Collieries	5.6	- 0.25	- 0.35	- 0.43	- 0.5	- 0.2	- 0.6	- 0.33
(2) Railways	9.5	- 0.33	- 0.40	- 0.60	- 1.0	- 0.4	- 0.4	- 0.43
(3) Manufacturing ^(d)	34.8	- 0.35	- 0.70	- 1.10	- 1.4	—	- 1.9	- 0.68
(4) Coke	25.7	+ 0.05	+ 0.05	- 0.10	- 0.2	+ 0.1	- 0.2	—
(5) Gas	22.5	- 0.10	- 0.05	- 0.20	+ 0.1	- 0.4	- 0.3	- 0.12
(6) Electricity	46.0	- 0.80	- 0.90	- 0.67	- 0.6	- 0.9	- 0.5	- 0.78
Total	144.1	- 1.78	- 2.35	- 3.10	- 3.6	- 1.8	- 3.9	- 2.34
<i>Difference to be explained (part 1, (4)) ..</i>		- 2.17	- 4.65	- 11.96	- 8.5	- 10.1	- 17.3	- 6.00
<i>Total, parts 2 to 4</i>		- 1.24	- 3.15	- 10.79	- 5.9	- 11.4	- 13.3	- 5.15
<i>Unexplained residual</i>		- 0.93	- 1.50	- 1.17	- 2.6	+ 1.3	- 4.0	- 0.85

Source : See Appendix to article. GDP = Gross domestic product, at factor cost, at constant (1954) prices.

(a) Adjusted for temperature, except for 187.8 in part 1, (2). Excludes Northern Ireland,

(b) Relative to the movement of GDP.

(c) Excluding improvements in efficiency, included in part 6.

(d) Details are given in the Appendix to the article, page 40.

Oil substitution was the main item reducing the demand for coal ; but the fall in demand for gas and coke and the improvements in efficiency were also important.

Table 4. Main factors in the fall in coal consumption, 1956-59^(a)

Average annual change, million tons

Oil was substituted for coal	4.47
Gas and coke demand fell, compared to national output	3.23
Coal efficiency improved	3.10
Temperature was above average	1.07
The pattern of output changed	0.56
Other factors (including residual)	0.60
Difference between actual fall in coal consumption, and rise in line with national output	13.03^(b)

Source : Table 3.

(a) Relative to the rise in national output.

(b) Difference between lines (1) and (2) of table 3, part 1.

Oil substitution⁽¹⁾

In the period from 1950 to 1954, oil was only replacing about $\frac{1}{2}$ million tons of coal a year ; the figure rose to $1\frac{3}{4}$ million tons in 1955-56 ; there was very little substitution in 1957, because of the closing of the Suez Canal, but in 1958 and 1959 it was running at the rate of over 6 million tons a year.

Whether the total rate of substitution will go on increasing is doubtful. The switch to oil in electricity generation accounts for 70 per cent of the increase in the total rate of substitution from 1955-56 to 1958-59. It was originally intended that 15 power stations—either existing stations or planned stations—should be converted to oil-firing ; this figure was later revised to 17, but has recently been reduced to 14, to permit the use of an additional $1\frac{1}{2}$ million tons of coal in 1960. In electricity generation, therefore, the rate of substitution should soon begin to decline rapidly (though there was still appreciable substitution in the first half of 1960) ; and coal will also be helped by the cut-back of the nuclear energy programme.

Outside the electricity industry, conversion to oil has gathered momentum more gradually. It was given an impetus in 1950, when the National Coal Board's 'Plan for Coal' expressed the view that the demand for solid fuel in the 1960s could not be met in full.

⁽¹⁾This is measured here, for each year, by the amount of additional coal which would have been used if the percentage of oil in fuel consumption in each sector had stayed the same as in the previous year. See Appendix, page 39.

It has been helped by the relatively steep rise in coal prices since 1954 (table 5) ; apart from 1957, when oil prices rose after the Suez Canal was closed, price movements have been in favour of oil every year. This year the differential has widened again.

Table 5. Price indices of coal and fuel oil

Index numbers, 1950=100

	1954	1955	1956	1957	1958	1959	1960 ^(a)
Coal	100	112	127	137	141	139	152
Fuel oil (medium) ..	100	102	111	133	115	107	112
<i>Excess of coal index over oil index (per cent)</i>	..	10	15	3	23	30	36

Source : Board of Trade.

(a) September estimates.

In 1958 and 1959, oil replaced coal at an annual rate of just over 1 million tons in domestic and miscellaneous uses ; this includes both the use of fuel oil for central heating and the use of paraffin for portable stoves. In industry, it replaced coal at an annual rate of about 2 million tons : about a quarter of this was in the iron and steel industry, and another quarter in bricks, cement and glass.⁽²⁾ But the rate of substitution appears to have been rather lower in 1959 than in 1958 : this was true both for the electricity industry and for the rest of the economy.

Other reasons

The fall in demand for gas and for coke since 1956 is the second main explanation of the failure of coal consumption to rise in line with national output. The demand for gas fell 10 per cent in the three years after 1956 ; its use in homes, shops and offices fell rather faster than its use in industry. The iron and steel industry uses well over half of the coke produced in the country, and this industry accounts for well over half the fall in demand. But demand in all other uses fell as well (table 6).

The other factors reducing the demand for coal were much the same as those reducing the total demand for fuel. Efficiency improved much faster in 1956-59 than in earlier years, and the change in the pattern of output tended to reduce the demand for coal slightly. This was partly because colliery output and the amount of railway traffic were both falling, and partly because, within manufacturing industry, iron and steel output rose more slowly than total manufacturing production from 1956 to 1959. But coal, of course, did not get any benefit from the rapid rise in road transport's fuel demand.

⁽²⁾See Appendix to the article, table 14.

Table 6. Demand for gas and coke

	1956	1959	Fall, 1956 to 1959		
	Million tons, coal equivalent		Per cent		
Demand for gas					
Total	19.8	17.8	—2.0	—10	
of which					
Domestic ..	9.1	7.9	—1.2	—13	
Miscellaneous ..	3.2	2.8	—0.4	—12	
All other ..	7.5	7.1	—0.4	— 5	
Demand for coke					
Total	33.8	27.9	—5.9	—17	
of which					
Iron and steel ..	18.9	15.4	—3.5	—18	
Other industries	4.1	3.5	—0.6	—15	
Domestic ..	3.9	3.5	—0.4	—10	
Miscellaneous ..	6.6	5.3	—1.3	—20	
All other ..	0.3	0.2	—0.1	—33	

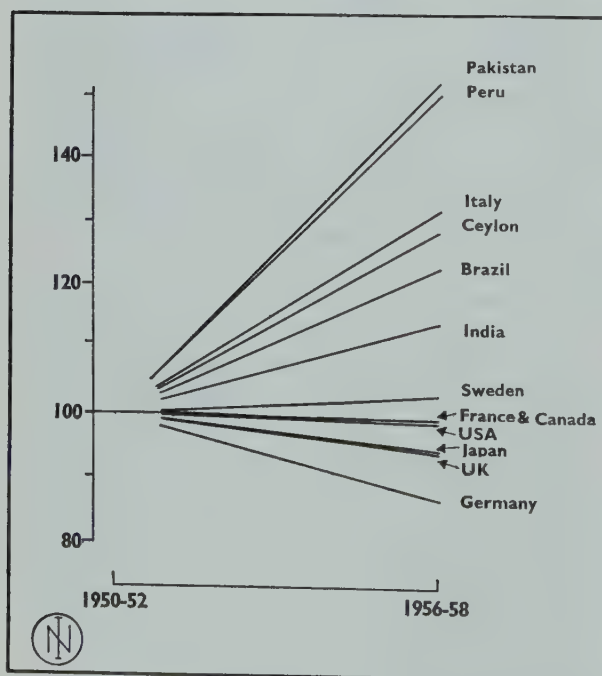
Source : See Appendix to article.

International comparisons

In some other countries too, there has been a tendency for the ratio of fuel input to national output to fall; in Western Germany, for instance, it has fallen rather faster than in Britain, and in Japan it has fallen nearly as fast (chart 5). But there are other industrial countries—such as the United States, France and Sweden, where there is no significant falling trend; and in countries which are industrial-

Chart 5. Energy : output ratios in selected countries^(a)

Index numbers, 1950-52=100



Source : See Appendix to article.

(a) Indices of energy consumption divided by national output.

ising rapidly, such as Italy or Brazil, fuel consumption has been rising much faster than national output. The main conflicting trends at work are the improvement in fuel efficiency on the one hand, and the increased demands of industrialisation and mechanisation on the other.

It appears that energy consumption in Britain, per unit of output of national product, is very much higher than in other western European countries, and about as high as in the United States. Table 7 shows gross national product per head and the consumption of energy per head in other countries, related to that in Britain. Whereas Western Germany's national product per head in 1958 was very nearly as big as ours, her consumption of energy per head was only three-quarters as big.

Table 7. Gross national product and consumption of energy per head

United Kingdom=100

	1955		1958	
	Gross national product	Energy	Gross national product	Energy
United Kingdom ..	100	100	100	100
United States ..	170	156	158	161
Western Germany ..	90	66	98	73
France ..	86	44	93	31
Belgium ..	93	82	94	79
Netherlands ..	82	48	84	52
Italy ..	51	15	57	19

Source : Comparative national products and price levels, 1958, OEEC, brought up to date from UN Yearbook 1959, and World Energy Supplies, 1955-58. The gross national products are compared in terms of estimated purchasing power, not at exchange rates.

High domestic coal consumption is part of the reason for the high British figure of energy input. Domestic solid fuel consumption per head in Britain in 1958 was 50 per cent higher than in Germany, and twice as big as in France. In general, although differences in climate and tastes must be taken into account, these figures suggest that there still is considerable scope for the more efficient use of energy in Britain, and that the input of energy per unit of output is quite likely to go on falling.

A detailed comparison of the trends in British and German figures also suggests that the fuel : output ratio could fall further in Britain (table 8). Comparing 1958 with 1950, it appears that in six main industrial groups the amount of fuel used per unit of output in Germany fell much faster than in Britain. This must be partly because output in Germany rose faster; this by itself tends to reduce the fuel : output ratio.

The shares of oil and coal in total primary fuel consumption are compared, for various countries and

Table 8. Fuel used per unit of output, Germany and United Kingdom*Index numbers, 1950=100*

	W. Germany		United Kingdom	
	1954	1958	1954	1958
Iron and steel	81	70	98	86
Chemicals	73	60	105	95
Bricks, cement	97	78	} 100	92
China and earthenware	75	59		
Paper and pulp	87	83	102	97
Textiles	87	76	102	102

Source : For German figures, *Wirtschaftskonjunktur*, 1960, no. 1. For British figures, see Appendix to article.

areas, in table 9. Oil's share has been rising throughout the world. In Britain, its share is higher than in Western Germany, but lower than in all OEEC countries together, and it has risen a little more slowly than the total OEEC figure since 1948.

Table 9. The shares of coal and oil in total primary fuel consumption^(a)*Per cent of total*

	1929	1938	1948	1957	1959 ^(b)
United States					
Coal	67	51	45	27	26
Oil	22	33	35	38	40
Soviet Union					
Coal	63	71	76	68	66
Oil	35	24	19	24	26
Germany ^(c)					
Coal	98	93	92	85	82
Oil	2	4	3	12	15
OEEC countries ^(d)					
Coal .. ..	.	85	80	67	60
Oil .. ..	.	8	10	22	27
United Kingdom					
Coal	96	93	80	84	76
Oil	4	7	10	15	23

Source : OEEC, Deutsches Institut für Wirtschaftsforschung.

(a) Coal and oil do not add up to 100 per cent of total fuel consumption ; hydro-electric power, natural gas, and other forms of primary fuel of minor importance account for the rest.

(b) Partly estimates.

(c) In post-war years Western Germany only.

(d) Includes Germany and the United Kingdom.

1960, and the future

Home demand for coal has recovered a little this year ; in the first eight months it was just over 2 million tons higher than in the same period of last year. But neither domestic nor industrial consumers used more coal directly, in spite of an average temperature $\frac{1}{2}$ a degree lower than last year, and a rate

of industrial production 10 per cent higher. The whole of the increase was accounted for by the electricity industry (+8 per cent) and by coke ovens (+12 per cent).

In electricity generation, oil was being substituted for coal in the first half year at an annual rate of $1\frac{1}{2}$ million tons, as against $2\frac{1}{2}$ million tons in the whole of last year. This slower rate of substitution, together with a rise in electricity output which was more rapid than last year, accounts for the increase in coal demand here. Some recovery in coke demand was to be expected as a result of the big increase in the output of steel. Neither of these changes is out of line with long-term trends.

The lesson of the early 1950s, when long-term shortages of fuel were confidently predicted, is that it is hazardous to attempt precise predictions of energy demands even five or ten years ahead. The Ridley Committee, reporting in mid-1952, made a ten-year estimate of the trend of fuel demand (excluding road transport). Table 10 compares their estimates for 1959-63 with what actually happened between 1951 and 1959. The Committee under-estimated the rise in demand for oil and electricity, and over-estimated the demand for gas, coke, and coal directly used ; further, they under-estimated the general improvement in efficiency. This may be a good instance of the way in which the publication of a forecast can falsify the forecast itself ; the Report must have helped to give a big impetus both to improved fuel efficiency and to oil substitution.

Changes in these two factors—fuel efficiency and oil substitution—are likely to be as big a source of error, in predictions made now, as changes in the trend in national output. There is probably still substantial scope for further efficiency improvements. At the beginning of the '50s, the standards of industrial fuel and power equipment were fairly low ; one of the few pieces of evidence⁽¹⁾ shows that at that time nearly half the Lancashire boilers (the most common type of boiler) were 40 years old or more ; it is doubtful whether the rate of replacement has been sufficient to bring down the average age appreciably. Surveys made in recent years by the National Industrial Fuel Efficiency Service (NIFES) suggest that in most firms, without much new investment, at least 10 per cent of the fuel consumed could be saved. International comparisons also suggest (page 34) that consumers in Britain are still relatively wasteful with fuel. Oil substitution is likely to be encouraged, in the next five years as in the past five, by the relative movement of prices.⁽²⁾

⁽¹⁾ Ministry of Fuel and Power Statistical Digest, 1953, Steam and Power Survey, table 17.

⁽²⁾ See page 33.

Table 10. Ridley Committee estimates, 1959-63, and actual figures, 1959^(a)

	Actual 1951	Ridley Committee : changes 1951 to 1959-63	Actual changes 1951 to 1959	Ridley Committee : 1959-63 estimates	Actual 1959 ^(b)
	Million tons coal equivalent	Per cent	Per cent	Million tons coal equivalent	
Coal, directly used	119.2	- 3½	- 20	115.0	95.3
Coke, etc. ^(c)	32.7	+41	- 3½	46.1	31.6
Gas ^(d)	19.5	+27	- 6	24.8	18.3
Electricity	36.7	+38	+ 55	50.6	57.0
Oil fuels	12.8	+82	+151	23.3	32.2
Total	220.9	+17½	+ 6½	259.8	234.4

Source : Report on the Committee on National Policy for the Use of Fuel and Power Resources, Cmd. 8647. Ministry of Power Statistical Digest 1959.

(a) The figures exclude road transport fuels. The base figures for the year 1951 have changed since the Ridley Committee report, and the conversion figures which they used differed, for oil fuels, from those used now in the Ministry of Power Statistical Digest 1959. The Ridley Committee's percentage changes, therefore, were applied to the actual 1951 figure in the Statistical Digest.

(b) Temperature corrected.

(c) Includes other solid fuel and creosote pitch.

(d) Includes coke oven gas.

Table 11 sets out various possibilities. Throughout, it is assumed that the small net effect of changes in the pattern of production will continue, with minor adjustments, at the same rate as from 1950 to 1959. The same assumption is made for the effect of the trends in domestic consumption, road transport, agriculture and miscellaneous uses. For fuel efficiency and oil substitution, three estimates are shown. All three assume no further substitution of oil for coal in electricity generation : this is a conservative assumption, since substitution was still continuing in 1960. Apart from this, the first calculation assumes the continuation of the 1950-59 rates of change ; this is probably the minimum reasonable assumption. The second calculation assumes the continuation of 1957-59 rate of improvement in efficiency and the 1958-59 rate of oil substitution. The third assumes some further increase in both these rates.⁽¹⁾

The range of possible estimates is wide. But the figure of 300 million tons for total fuel requirements in 1965, only appears on the extreme edge of the map. This figure was first given as an estimate for 1965 by the Minister of Fuel and Power in February 1956⁽²⁾; it was repeated, rather surprisingly, by the Paymaster-General in July 1959⁽³⁾. Between 1956 and 1959 the fuel situation changed ; it seems reasonable to revise forward estimates of fuel demand in the light of that change. Indeed, if the improvement in fuel efficiency exceeds the 1950-59 rate, and if national output rises only 3 per cent a year—and both of these are quite

plausible possibilities—total energy demand may still be below 300 million tons in 1970.

It is always possible that the Government will take measures to alter the relative attractiveness of oil and coal as fuels. Failing this, there seems little likelihood of a rise in home demand for coal between now and 1965, unless national output rises 4 per cent a year. With a 3 per cent annual rise in national output, even assuming the relatively low 1950-59 rates of coal-efficiency improvement and oil substitution, home coal demand would be about the same in 1965 as in 1959. If those rates are higher than in 1950-59—say as high as in 1957-59—then it will need a 4 per cent annual rise in national output to raise coal demand between now and 1970.

These illustrative exercises are not predictions. But they suggest that fuel policies, in the light of recent trends, should now be geared to lower estimates of future demand for energy than those at present current. In particular there seems to be little chance that home demand for coal, unless supported by government action, will rise significantly in the next five years.

Summary

In the last decade, total energy consumption in Britain has risen little more than half as fast as national output. This was mainly because trends of output and fuel consumption diverged after 1956. The two main explanations of this divergence were that the temperature was higher than average and that fuel efficiency improved faster : the ratio of fuel input to industrial output fell more sharply than before. Other influences—the trend in domestic consumption, changes in the pattern of output within industry, and so on—did not have any important net effect.

The big economies in fuel have, throughout the

⁽¹⁾See Appendix to article for the full set of assumptions.

⁽²⁾*Weekly Hansard*, no. 343, col. 2061 (13 February 1956).

⁽³⁾*Weekly Hansard*, no. 465, col. 1559 (23 July 1959) . . . 'I still think that it is reasonable to take 300 million tons as a rough figure for the total energy demand in the middle 1960's'.

Table 11. Hypothetical calculations of total fuel and coal consumption, 1965 and 1970^(a)

Million tons, coal equivalent

	2 per cent annual rise in GDP		3 per cent annual rise in GDP		4 per cent annual rise in GDP	
	1965	1970	1965	1970	1965	1970
Total fuel (250 in 1959)^(b)						
Assuming fuel-efficiency improvements :						
(a) at 1950-59 rates	267	284	274	305	292	338
(b) at 1957-59 rates ^(c)	258	267	265	288	283	321
(c) a further slow increase in fuel efficiency rates ..	255	262	260	280	277	310
Coal (190 in 1959)^(b)						
Assuming coal-efficiency improvements and oil substitution :						
(a) at 1950-59 rates	183	178	190	199	206	226
(b) at 1957-59 rates ^(c)	172	159	180	179	196	208
(c) a further slow increase in coal-efficiency rates and in oil-substitution rates	166	148	173	168	190	197

Source : See Appendix to article.

(a) It is assumed that, apart from fuel-efficiency and oil substitution, the other trends shown in tables 1 and 2 continue more or less at 1950-59 rates. Throughout it is assumed that there is no further substitution of oil for coal in electricity generation.

(b) Adjusted for temperature.

(c) 1958-59 rates for oil substitution ; 1957 figures were distorted by the blocking of the Suez Canal.

decade, been made in six industries or industry groups : electricity generation, iron and steel, the railways, collieries, chemicals, and bricks, cement, glass, etc. In other industries the improvements in efficiency have been less dramatic. In some, the ratio of fuel input to output has risen in the last decade.

While total energy consumption, adjusted for temperature, has merely failed to rise since 1956, home demand for coal has fallen sharply. The big factors here have been oil substitution ; the fall in demand for gas and coke ; and the improvements in the efficiency of coal usage, in that order. The switch to oil in electricity generation explains a good deal of the increase in the rate of oil substitution since 1956 ; from now on, the rate of substitution in this industry can be expected to decline.

International comparisons suggest that Britain is

still relatively wasteful of fuel : her input of energy for each unit of output is higher than that of any other western country except the United States, and her improvements in fuel efficiency since 1950 have been much smaller than those of Western Germany.

Two of the main difficulties in forecasting energy and coal demand for the future are to assess the rate at which efficiency will improve and the rate at which oil will take the place of coal. The Ridley Committee, in its ten-year estimate published in 1952, underestimated both these rates. It would need a very slow rate of efficiency improvement, and a very rapid increase in national output, for the demand for energy to reach 300 million tons (coal equivalent) by 1965 ; this is still the official estimate. It also does not seem likely that the demand for coal will rise over the next five years.

APPENDIX

Sources

Unless otherwise stated, the figures are taken from publications of the Ministry of Power, in particular the *Ministry of Power Statistical Digest 1959*.

Temperature corrections

The average annual temperature was the arithmetic average of the monthly average temperature recorded at twenty meteorological stations selected as representative of fuel consumption in Great Britain (17 in England, 2 in Scotland and 1 in Wales).

Different factors were used for different sectors of the economy. Domestic consumption probably varies most with temperature; a 2½ per cent adjustment was applied to consumption in this sector, for each degree Fahrenheit by which the average annual temperature deviated from the thirty-year average (1921–1950).

The industrial sectors were subdivided. Temperature changes have very little effect on the amount of fuel needed for the technical processes of production; but they do influence the amount of fuel used for space-heating in industry, though probably not as much as the fuel used in the home. The corrections applied are shown in table 12. The adjustment for 'Miscellaneous' is a relatively large one, since the main item here is the fuel consumption of shops and offices.

Table 12. Corrections applied for each degree of deviation from the average temperature in 1921–50

	Per cent
Domestic consumption	2½
Engineering, food, drink and tobacco, textiles and clothing, 'other' industries	1
Iron and steel, chemicals, paper, bricks, cement, glass, etc., railways	¼
Miscellaneous	1½
Collieries, agriculture, electricity, coke ovens, gas works, road and air transport	Nil

These adjustments add up to an adjustment, for total fuel consumption, of 1.1 per cent for every degree of deviation from the average thirty-year temperature.

During the period under consideration the average annual temperature was lower than average in six years and higher in three. 1956 was the coldest, and 1959 the warmest, year.

Ideally, a temperature correction should take account of several other factors: for instance, an abnormally cold summer will have an effect different from that of an abnormally cold winter, and abnormal temperatures are more important in some areas than others. A more elaborate calculation was thought unnecessary for the analysis in this article.

Coal equivalents

Except in chart 2, the coal equivalents are those used by the Ministry of Power (*Ministry of Power Statistical Digest 1959*, table 7). Oil products (and creosote-pitch mixtures) are converted to coal equivalent at 1.7 tons of coal per ton of oil. The coal equivalent of coke oven gas is taken at 40,000 cubic feet per ton; that of gas sold is taken to be the coal used at gas works plus the coal equivalent of oil used, and coke oven gas purchased, less gas coke and coke breeze produced for sale and creosote-pitch mixtures sold. One ton of gas coke or hard coke is assumed to be equivalent to one ton of coal except that the coal equivalent of hard coke used by blast furnaces includes losses in conversion at coke

ovens. Coke breeze is converted to coal equivalent at 0.9 tons of coal per ton. The coal equivalent of other solid fuels (including briquettes, ovoids, and Phurnacite) is taken to be the coal used in their production.

The coal equivalent of electricity is taken to be the coal used at public supply and transport generating stations, plus the coal equivalent of coke breeze, and oil. Hydro and nuclear electricity are taken to be equivalent to the amount of coal currently needed to produce the same quantity of electricity at steam stations.

In chart 2, which compares progress in fuel efficiency in various industries, electricity is converted into coal equivalent at the amount of coal used to produce it in 1950. Consequently the figures for the various industries exclude the effect of improved fuel efficiency in electricity generating; this is shown separately.

Apart from the figures for blast furnaces and railways, the analysis of coke consumption is largely estimated. The figures for domestic consumption since 1952 are for disposals to consumers of less than 10 tons a year. The basic consumption figures for coal and coke in industry and agriculture relate to establishments with an annual consumption of 100 tons or more. The oil consumption of road transport includes motor spirit used for other purposes as well.

The coal consumption of the 'miscellaneous' group includes coal shipped to Northern Ireland; there are no further details available of these shipments, which account for 1 to 1½ per cent of total consumption.

The division of fuel consumption between sectors

Fuel consumption was divided between 15 sectors. This was based on the figures given in the *Ministry of Power Statistical Digest 1959*, table 7. In this table, however, there are only two subgroups within industry; estimates were made of a more detailed breakdown into eight subgroups, with the help of Censuses of Production and figures supplied by Gas and Electricity Councils.

Index numbers of production and performance

The official index numbers of industrial production—grouped where necessary—were used for manufacturing industry and agriculture. 'Other industries' include timber, furniture, etc. (order XIV, new Standard Industrial Classification), 'other' manufacturing industries (order XVI), and construction (order XVII). Elsewhere, the following indicators have been used:

Collieries: production of saleable mined coal.

Railways: an average of the index numbers of passenger-miles and ton-miles of the British Railways, weighted by engine-miles in 1954.

Air-transport: short-ton-miles (this includes passengers, freight and mail).

The effect of changes in the pattern of output (table 1, part 3, and table 3, part 3)

The effect of changes in the pattern of output was measured by the deviations of the year-to-year changes in the production of each sector from the year-to-year change in national output on the basis of the following model:

$$P_n = (S_n - G_n) \times \frac{F_n}{100}$$

where P_n = effect of pattern change in year n

S = change in the production of the sector since previous year

G = change in GDP since previous year

F = total temperature-corrected fuel consumption in the sector

The share of coal in the total pattern effect in any year was assumed to be the same as the share of coal in total fuel consumption in that year.

Efficiency changes (table 1, part 4, and table 3, part 6)

The temperature-corrected change in total fuel consumption in each sector was compared with the change that would have occurred if the previous year's fuel-output ratio had not changed:

$$E_n = \left(\frac{F_{n-1}}{100} S_n \right) - (F_n - F_{n-1})$$

where E_n = effect of the changing fuel efficiency in year n .

For coal efficiency, the effects of substitution of oil and electricity had to be allowed for in the following way:

$$EC_n = \frac{C_{n-1}}{100} S_n - [(C_n - C_{n-1}) + OS + QS]$$

where EC_n = the effect of the changing coal efficiency in year n

C = coal consumption

OS = the quantity of coal substituted by oil

QS = the quantity of coal substituted by electricity

Details of changes in coal efficiency in manufacturing industry, additional to those given in table 3, part 6, are given in table 14.

Substitution (table 3, part 4 (1/b), and part 5)

Substitution, by oil or by electricity, was measured by the year-to-year loss in the share of coal in total fuel consumption:

$$S = F_n \times 100 \left(\frac{C_{n-1}}{F_{n-1}} - \frac{C_n}{F_n} \right)$$

Details of the substitution of electricity for coal (table 3, part 4 (1/b)) are given in table 15; details of the substitution of oil for coal in manufacturing industry (table 3, part 5, (4)) are given in table 14.

Inter-industry and international comparisons of fuel-output ratios

The industrial fuel: output ratios (chart 2) are calculated by dividing an index of total fuel consumption (in coal equivalent) by the index of production or performance. In these calculations electricity has been converted at constant factors (see the section on coal equivalents, page 38).

The international energy: output ratios (chart 5) are calculated on the same principle: indices of total energy input were divided by indices of gross national product at constant prices. The indices of total energy input were calculated from *World Energy Supplies*, 1951-1954, and *World Energy Supplies* 1955-1958 (United Nations). The figures were linked by using the energy table (table 128) in the *United Nations Statistical Yearbook 1957*. Figures for hydro-electricity for 1951-54 were recalculated on the basis of the conversion factors used in *World Energy Supplies* 1955-1958.

Indices of gross national product at constant prices were taken from OEEC *General Statistics*, and the *United Nations Statistical Yearbook 1959*.

Figures for German and French domestic consumption of solid fuel were taken from the Bulletin Statistique (May 1960) of the European Coal and Steel Community.

Hypothetical calculations of total fuel and coal consumption (table 11)

The basis of these calculations is shown in more detail in table 13.

Table 13. Factors used in table 11 (Hypothetical calculations of total fuel and coal consumption, 1965 and 1970)

	Million tons, coal equivalent		
	Per cent rise in GDP		
	2	3	4
Total fuel			
(1) 50-59 rates			
Demand rising not in proportion to GDP:			
Domestic and miscellaneous	-1.0	-1.3	-1.8
Road transport	+0.6	+0.5	+0.4
Collieries, railways ..	-0.6	-0.6	-0.6
Air transport	+0.3	+0.3	+0.3
Manufacturing	+0.5	+0.6	+0.8
Efficiency	-2.0	-2.25	-2.5
(2) 56-59 rates ^(a)			
Efficiency	-3.5	-3.75	-4.0
(3) 56-59 rates increased ^(a)			
Efficiency	-4.0	-4.5	-5.0
Coal			
(1) 50-59 rates			
Demand rising not in proportion to GDP:			
Domestic and miscellaneous	-0.6	-0.7	-0.9
Collieries, railways ..	-0.3	-0.3	-0.3
Manufacturing	+0.2	+0.6	+0.9
Electricity	+1.0	+1.2	+1.4
Gas and coke	-0.9	-0.9	-0.9
Efficiency	-2.3	-2.5	-2.9
Oil substitution	-1.5	-1.7	-1.9
Nuclear energy ^(b)			
(2) 56-59 rates ^(a)			
Efficiency	-3.1	-3.4	-3.7
Oil substitution ^(c)	-2.4	-2.6	-2.8
(3) 56-59 rates increased ^(a)			
Efficiency	-3.6	-3.9	-4.2
Oil substitution	-2.9	-3.1	-3.3

(a) The factors for the constituents not given separately here are the same as those under (1).

(b) Nuclear energy has been estimated to replace 4 million tons of coal in 1965 and 8 million in 1970.

(c) The average of 1958 and 1959 rates; 1957 has been omitted, as it was the year when the Suez Canal was closed.

Table 14. Manufacturing industry : estimated quantities of coal substituted by oil, and the changes in coal efficiency

Annual changes, or annual average changes, million tons

	Consumption in 1959	1950-54	1954-56	1956-59	1957	1958	1959	1950-59
Estimated quantities of coal substituted by oil								
Iron and Steel	4.1	0.17	0.15	0.30	—	0.6	0.3	0.21
Engineering	2.7	0.08	0.20	0.17	—	0.4	0.1	0.13
Food, drink, tobacco	2.9	0.03	0.10	0.20	0.1	0.3	0.2	0.10
Chemicals	5.9	0.05	0.10	0.20	—	0.3	0.3	0.11
Textiles, leather, clothing	4.1	0.05	0.05	0.07	—	0.1	0.1	0.06
Paper, printing	3.3	—	0.05	0.13	—	0.3	0.1	0.06
Brick, cement, glass, etc.	6.5	0.05	0.20	0.30	—	0.3	0.6	0.17
Other industries ^(a)	5.3	—	0.05	0.06	—	0.1	0.1	0.03
Total	34.8	0.43	0.90	1.43	0.1	2.4	1.8	0.87
Changes in coal efficiency								
Iron and Steel		-0.43	-0.45	-0.30	-0.5	—	-0.4	-0.39
Engineering		+0.03	—	-0.03	-0.1	+0.1	-0.1	—
Food, drink, tobacco		+0.03	—	+0.03	—	+0.1	—	+0.02
Chemicals		+0.08	-0.10	-0.30	-0.2	-0.1	-0.6	-0.09
Textiles, leather, clothing		+0.03	—	-0.10	-0.2	+0.1	-0.2	-0.02
Paper, printing		+0.03	-0.10	—	—	+0.1	-0.1	-0.01
Brick, cement, glass, etc.		-0.04	—	-0.27	-0.3	-0.3	-0.2	-0.10
Other industries ^(a)		-0.08	-0.05	-0.13	-0.1	—	-0.3	-0.09
Total		-0.35	-0.70	-1.10	-1.4	—	-1.9	-0.68

(a) Timber, furniture, etc., 'other' manufacturing, and construction.

Table 15. Substitution of electricity for coal

Annual changes, or annual average changes, million tons

	Coal consumption in 1959	1950-54	1954-56	1956-59	1957	1958	1959	1950-59
Domestic	33.6	0.25	0.60	0.67	0.5	0.5	1.0	0.47
Miscellaneous	9.7	0.17	0.10	—	—	—	—	0.10
Railways	9.5	—	0.05	0.03	—	0.1	—	0.02
Collieries	5.6	0.18	0.30	0.27	0.3	0.2	0.3	0.23
Manufacturing	34.8	0.38	0.40	0.77	0.6	0.7	1.0	0.51
of which : Iron and Steel	4.1	0.08	—	0.03	0.1	—	—	0.04
Engineering	2.7	0.03	—	0.13	0.2	—	0.2	0.06
Food, drink, tobacco	2.9	—	—	—	—	—	—	—
Chemicals	5.9	0.08	—	0.17	0.2	0.1	0.2	0.09
Textiles, leather, clothing	4.1	0.08	0.15	0.17	0.1	0.2	0.2	0.12
Paper, printing	3.3	0.05	0.05	0.07	—	0.1	0.1	0.06
Brick, cement, glass, etc.	6.5	0.03	0.05	0.07	—	0.2	—	0.04
Other industries ^(a)	5.3	0.05	0.15	0.13	—	0.1	0.3	0.10
Total	93.2	0.98	1.45	1.74	1.4	1.5	2.3	1.33

(a) Timber, furniture, etc., 'other' manufacturing, and construction.

STATISTICAL APPENDIX

The Home Economy

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Symbols and conventions used

.. = not available.

— = nil or less than half the final digit shown.

billion = thousand millions.

Items may not always add to totals, because of rounding.

A horizontal bar across a column indicates a discontinuity in the series.

Italics are used where NIESR has added estimates to figures published elsewhere—for instance, when an estimated later figure is added.

Table 1. Gross domestic product

Seasonally adjusted

	Final expenditure at market prices						Less Imports of goods and services	Less Adjustment to factor cost (c)	Statistical discrepancy	Gross domestic product at factor cost	Output				
	Consumers' expenditure (a)	Public authorities' current spending	Gross fixed investment (b)	Value of physical stock change	Exports of goods and services	Total final expenditure					Gross domestic product	Industrial production (d)	Agriculture, etc.	Transport, communication	Distribution, other services
	£ million, 1954 prices, quarterly averages										Index numbers, 1954 = 100				
1948	2,677	592	467	+ 59	656	4,451	738	449	+ 61	3,325	85	79.0	84	87	90
1949	2,735	638	508	+ 9	736	4,626	791	455	+ 67	3,447	88	83.6	90	89	91
1950	2,813	637	533	— 60	842	4,765	802	465	+ 83	3,581	91	88.3	92	92	94
1951	2,772	690	534	+141	854	4,991	898	485	+ 48	3,656	93	91.3	94	96	94
1952	2,756	764	536	+ 10	847	4,913	821	469	+ 1	3,624	92	89.2	97	96	94
1953	2,869	788	593	+ 33	837	5,120	868	490	+ 8	3,770	96	94.3	99	98	97
1954	3,014	785	647	+ 12	905	5,363	913	515	—	3,935	100	100.0	100	100	100
1955	3,124	768	679	+ 73	971	5,615	1,012	535	+ 9	4,077	104	105.1	99	102	103
1956	3,157	774	713	+ 66	1,031	5,741	1,044	535	— 54	4,108	104	105.6	105	104	103
1957	3,225	750	743	+ 64	1,048	5,830	1,065	544	— 38	4,183	106	107.5	107	104	105
1958	3,305	746	747	+ 21	1,012	5,831	1,070	569	— 5	4,187	106	106.3	106	103	107
1959	3,437	766	786	+ 29	1,037	6,055	1,152	610	+ 98	4,391	112	112.6	111	106	112
1957 I	3,195	763	741	+115	1,080	5,894	1,076	539	—104	4,175	106	107	108	105	105
II	3,222	757	741	+ 75	1,047	5,842	1,048	534	— 69	4,191	107	108	108	105	105
III	3,230	740	745	+ 70	1,033	5,818	1,090	549	+ 20	4,199	107	108	107	104	106
IV	3,251	743	744	— 5	1,031	5,764	1,046	553	+ 2	4,167	106	107	107	103	106
1958 I	3,285	754	749	+ 10	1,027	5,825	1,050	564	— 20	4,191	107	107	107	103	107
II	3,278	742	744	—	991	5,755	1,056	574	+ 46	4,171	106	106	107	103	106
III	3,295	738	745	+ 80	1,031	5,889	1,091	569	— 66	4,163	106	105	105	102	107
IV	3,361	748	750	— 5	999	5,853	1,082	568	+ 19	4,222	107	106	105	104	109
1959 I	3,370	751	749	— 75	983	5,778	1,106	589	+175	4,258	108	108	105	104	109
II	3,457	772	778	+ 50	1,042	6,099	1,169	609	+ 31	4,352	111	111	105	106	113
III	3,420	774	798	+ 75	1,058	6,125	1,144	619	+ 49	4,411	112	114	117	106	112
IV	3,500	769	819	+ 65	1,060	6,213	1,187	623	+138	4,541	115	117	117	108	115
1960 I	3,593	791	841	+ 75	1,104	6,404	1,219	649	+ 44	4,580	116	120	117	110	115
II	3,616				1,079		1,279			4,615	117	121	117	112	117

For changes to this table see page 54. (a) For details see table 8. (b) For details see table 9. (c) Net indirect taxes at 1954 rates. (d) For details see table 2.

Table 2. Production in industry

Seasonally adjusted

	Total industrial production	Construction	Mining	Total manufacturing	Metals, metal-using				Textiles	Chemicals	Other industries	Steel		Passenger cars output	Selected durable consumer goods
					Total	Engineering and electrical	Vehicles	Ship-building				out-put	consumption		
	Index numbers, 1954 = 100											'000 tons	'000	1954 = 100	
Weights	1,000	120	72	760	374	164	78	22	77	63	295	quarterly rates or averages			
1948	79.0	86.7	90.8	77.3	75.6	69.4	61.4	116.5	85.5	68.0	77.9	3,719	3,353	84	37
1949	83.6	90.7	93.8	82.2	80.0	75.9	71.2	106.1	92.1	70.2	83.5	3,888	3,550	103	44
1950	88.3	90.8	94.8	87.8	85.1	84.5	76.4	93.5	100.1	79.7	88.6	4,073	3,710	131	67
1951	91.3	87.3	98.0	91.6	90.3	90.5	79.9	96.2	99.8	83.7	91.8	3,910	3,772	119	79
1952	89.2	90.0	99.3	88.2	91.3	92.4	79.5	99.2	81.9	79.6	87.8	4,104	3,825	112	63
1953	94.3	96.3	98.8	93.7	93.4	93.6	90.4	105.1	97.4	89.1	93.8	4,402	3,915	149	76
1954	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	4,630	4,190	192	100
1955	105.1	100.3	99.0	106.4	109.6	107.4	114.6	108.5	97.5	106.2	104.6	4,948	4,470	224	111
1956	105.6	105.8	99.2	105.9	108.3	107.0	107.2	117.4	96.4	110.6	105.1	5,165	4,617	177	88
1957	107.5	105.5	98.5	108.3	111.4	111.0	114.9	107.9	96.5	115.0	106.9	5,425	4,655	215	105
1958	106.3	105.0	94.3	106.9	110.3	111.5	118.4	108.8	87.1	115.0	108.0	4,892	4,459	263	118
1959	112.6	111.3	91.8	114.1	116.7	118.2	129.0	101.1	92.0	131.2	113.9	5,047	4,472	297	163
1958 I	107	105	96	108	112	111	120	111	90	114	108	5,394	4,659	274	108
II	106	104	95	106	110	110	118	107	86	114	108	4,992	4,458	267	116
III	105	105	92	106	110	112	116	110	85	114	107	4,695	4,403	257	115
IV	106	107	95	107	109	113	119	107	87	118	108	4,485	4,165	253	130
1959 I	108	110	91	108	110	111	124	107	86	125	111	4,468	4,131	255	141
II	111	109	94	113	116	117	129	101	91	131	113	4,915	4,524	293	173
III	114	112	92	115	117	121	122	100	94	133	115	5,070	4,517	282	171
IV	117	114	91	120	125	124	141	97	97	137	118	5,733	4,726	360	166
1960 I	120	117	90	122	127	126	145	95	94	141	120	5,940	4,875	376	170
II	121	116	88	124	128	127	142	92	96	145	122	5,931	5,177	372	161
April	121		87	125	130	130	145	92	97	143	123	5,886	..	356	
May	120		88	124	127	124	144	91	96	145	123	5,922	..	397	
June	120		88	123	128	128	139	93	95	146	120	5,985	..	364	
July	120-1											5,877	..	345	
August												6,102	..	338	

For changes to this table see page 54.

Table 3. The labour market

Seasonally adjusted

Seasonally adjusted

	Employment											Demand for labour			Net over-time per head in manufacturing (b)
	Total civil employ-ees	Agri-culture etc.	Trans-port, com-munica-tion	Distri-bution and other services	Total indus-trial produc-tion	Con-struc-tion	Mining	Total manu-factur-ing	Metals, metal-using	Textiles	Other indus-tries	Unem-ploy-ment	Unfilled vacan-cies	Excess demand (a)	
	Index numbers, 1954 = 100											Percentage of employees			
Millions in 1954	21.07	0.72	1.67	7.30	11.38	1.31	0.87	8.83	4.31	0.99	3.90	Weekly hours			
1948	94.4(c)	113.7(c)	103.6(c)	94.4(c)	91.8(c)	98.2(c)	100.9(c)	90.2(c)	90.2(c)	94.0(c)	88.8(c)	1.50	2.30	0.68	..
1949	95.1	109.4	103.5	94.6	93.3	98.3	100.5	92.0	90.0	97.8	92.6	1.52	1.95	0.42	..
1950	96.5	111.0	103.1	95.3	95.3	98.4	98.0	94.6	91.8	102.1	95.8	1.53	1.77	0.27	..
1951	97.5	106.4	102.2	95.8	97.3	98.9	98.4	97.0	94.5	103.4	98.0	1.19	2.01	0.69	..
1952	97.4	104.0	102.0	96.4	96.9	97.8	100.6	96.2	96.9	93.8	96.4	1.99	1.34	-0.27	1.0
1953	98.0	101.1	100.7	97.3	97.9	98.6	100.8	97.4	97.1	98.2	97.8	1.64	1.33	-0.04	1.8
1954	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1.34	1.56	0.29	2.0
1955	101.3	97.8	99.3	100.8	102.2	102.0	99.4	102.6	104.6	96.6	101.7	1.08	1.91	0.73	2.1
1956	102.1	91.6	99.5	102.4	102.9	105.0	99.1	103.1	105.9	94.4	101.9	1.19	1.66	0.46	1.9
1957	102.5	91.2	99.9	103.4	103.0	104.3	100.1	103.1	109.0	93.7	102.0	1.43	1.27	0.01	1.9
1958	101.8	89.5	98.6	104.3	101.5	102.3	98.7	101.7	105.5	87.9	101.0	2.10	0.90	-0.67	1.4
1959	102.4	87.8	96.9	106.2	101.5	103.0	94.6	102.2	105.9	86.0	101.9	2.17	1.02	-0.62	1.9
1959 I	101.7	87.3	97.6	105.7	100.6	102.0	96.7	100.8	104.5	85.0	100.8	2.32	0.84	-1.03	1.5
II	102.0	87.1	97.1	105.9	101.0	102.9	95.5	101.5	105.1	85.5	101.3	2.21	0.95	-0.76	1.8
III	102.6	87.6	96.6	106.4	101.8	103.4	93.8	102.7	106.4	86.7	102.3	2.14	1.10	-0.41	2.0
IV	103.2	89.1	96.4	106.8	102.5	103.6	92.3	103.7	107.8	86.9	103.0	2.03	1.20	-0.28	2.3
1960 I	103.4	85.0	96.0	106.9	103.1	103.7	90.5	104.7	109.3	86.6	103.6	1.70	1.30	-0.15	2.2
II	103.9	83.3	95.8	107.5	103.9	103.9	88.5	105.9	110.9	87.2	104.5	1.58	1.43	-0.07	2.4
April	103.6	82.8	95.8	107.3	103.5	103.1	89.2	105.5	110.4	87.0	104.2	1.65	1.36	-0.10	
May	103.9	83.4	95.8	107.4	103.9	104.3	88.6	105.9	111.0	87.2	104.4	1.54	1.46	-0.05	
June	104.2	83.6	95.8	107.7	104.2	104.4	87.9	106.3	111.4	87.3	104.9	1.55	1.46	-0.05	
July	104.4	82.9	96.0	108.3	104.4	104.0	87.3	106.9	111.8	87.4	105.2	1.56	1.47	-0.05	
August												1.62	1.44	-0.07	
Sept.												1.53	1.50	-0.02	

NIERS index based on unemployment and vacancies.

(b) Not seasonally adjusted.

(c) End-June, seasonally adjusted.

Table 4. Unemployment by industry

Percentage of total employees, seasonally adjusted

	Metals, metal-using	Textiles	Con-struc-tion	Mining	Trans-port, services	Other
1948	1.54	0.66	2.64	0.32	1.62	1.27
1949	1.34	0.66	2.90	0.30	1.72	1.28
1950	1.18	0.60	2.83	0.33	1.80	1.37
1951	0.83	0.83	2.05	0.26	1.46	1.15
1952	1.17	8.44	2.83	0.26	1.86	1.79
1953	1.33	1.35	2.86	0.28	1.86	1.46
1954	0.92	0.92	2.50	0.25	1.58	1.23
1955	0.63	1.64	1.76	0.19	1.27	1.01
1956	0.94	1.41	2.01	0.21	1.30	1.09
1957	1.07	1.13	2.83	0.31	1.60	1.29
1958	1.76	3.96	4.00	0.57	2.09	1.82
1959	1.79	2.70	4.63	0.98	2.15	1.89
1958 I	1.19	2.33	3.02	0.43	1.77	1.43
II	1.63	3.75	3.86	0.52	2.03	1.76
III	1.90	4.60	4.30	0.61	2.24	1.97
IV	2.31	5.16	4.82	0.72	2.30	2.10
1959 I	2.21	4.37	4.73	0.84	2.16	2.04
II	1.97	2.70	4.50	0.95	2.18	1.90
III	1.56	1.86	4.78	1.04	2.23	1.87
IV	1.42	1.88	4.49	1.10	2.05	1.76
1960 I	1.17	1.92	3.17	0.84	1.92	1.40
II	1.02	1.61	3.22	0.79	1.78	1.28
March	1.10	1.88	3.18	0.86	1.88	1.34
April	1.06	1.81	3.30	0.86	1.84	1.32
May	0.99	1.53	3.21	0.77	1.75	1.23
June	1.02	1.49	3.15	0.74	1.74	1.29
July	1.05	1.43	3.20	0.75	1.75	1.32
August	1.04	1.47	3.19	0.77	1.83	1.28

Table 5. Productivity

Index numbers, 1954 = 100, seasonally adjusted

	Output per person employed in						Output per man-hour worked (a)
	gross domestic product	total industrial production	total manufacturing	metals, metal-using	textiles	mining	
1948	89	86	86	84	91	90	88
1949	92	90	89	89	94	93	92
1950	95	93	93	93	98	97	94
1951	95	94	94	96	97	100	96
1952	94	92	92	94	87	99	93
1953	97	96	96	96	99	98	97
1954	100	100	100	100	100	100	100
1955	102	103	104	105	101	100	103
1956	103	103	103	102	102	100	103
1957	105	104	105	102	103	98	106
1958	106	105	105	105	99	96	107
1959	111	111	112	110	107	97	112
1958 I	106	105	105	105	99	96	106
II	105	104	104	104	97	96	106
III	105	104	105	105	98	94	107
IV	107	105	106	104	102	97	108
1959 I	108	107	107	105	101	94	109
II	110	110	111	110	106	98	112
III	111	111	112	110	108	98	113
IV	114	114	115	116	112	99	116
1960 I	114	116	117	116	109	100	117
II	115	116	117	116	110	99	119
April		117	119	118	111	97	
May		116	117	114	111	99	
June		115	116	115	108	100	

(a) In manufacturing.

Table 6. Prices

Index numbers, 1954 = 100

	Capital goods				Export prices	Retail prices	Consumer goods and services								Total final prices
	All assets	Plant, vehicles, etc.	Dwellings	Other building			Total	Food	Drink, tobacco	Housing (inc. rent and rates)	Durable goods	Clothing	All other goods	Services	
1948	78	76	79	81	78	75.7	79.6	67.3	99.2	79.4	84.9	82.2	82.9	79.6	78.1
1949	79	78	80	81	81	77.8	81.2	70.7	98.1	80.9	83.6	85.6	83.6	81.3	80.2
1950	81	81	81	81	85	79.9	83.3	74.6	97.0	83.1	87.0	86.6	85.7	83.8	82.7
1951	90	87	94	91	100	87.6	91.1	83.2	98.3	88.4	99.1	100.4	95.2	90.2	92.7
1952	99	97	104	100	105	95.3	96.5	92.5	99.6	92.5	105.9	100.1	100.4	95.3	98.3
1953	100	100	101	100	101	98.3	98.2	96.2	99.8	97.3	102.2	99.2	99.3	97.9	98.7
1954	100	100	100	100	100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1955	105	104	106	106	102	104.5	103.4	105.9	100.5	103.5	101.3	100.6	103.0	104.0	103.5
1956	111	110	112	111	106	109.7	107.9	109.9	103.9	107.7	108.5	102.5	109.1	110.0	108.7
1957	115	115	113	115	111	113.8	111.0	112.1	106.4	114.9	110.3	104.1	113.3	114.1	112.6
1958	118	120	115	119	110	117.2	114.0	113.9	108.7	128.3	110.2	105.0	115.3	119.1	115.2
1959	117	119	112	117	109	117.8	114.3	114.8	106.3	135.4	108.0	104.5	114.8	120.4	115.6
1959 I	117	120	112	117	109	118.6	115.0	115.0	108.2	134.0	111.1	104.1	115.6	119.2	116.4
1959 II	117	119	112	118	109	117.5	114.3	115.6	105.4	134.8	107.7	104.4	114.5	120.1	115.6
1959 III	117	119	112	118	108	117.2	114.0	113.5	105.6	136.0	106.6	104.8	115.2	120.3	115.2
1959 IV	117	119	112	116	110	118.1	114.1	115.1	106.4	136.7	107.0	104.6	114.0	121.8	115.5
1960 I	115	118	111	115	111	118.1	113.8	112.5	105.8	137.5	107.1	105.6	113.1	122.2	115.5
1960 II					111	118.8			108.2	139.1		105.8			
January					111	118.2	113.9	113.0	105.8	137.4	107.1	105.2	113.0	122.1	
February					111	118.2	113.9	112.6	105.8	137.4	107.1	105.7	113.1	122.1	
March					111	118.0	113.7	111.9	105.8	137.6	107.1	105.8	113.2	122.3	
April					112	118.6	114.3	111.7	108.3	138.8	107.0	105.8	113.3	122.7	
May					111	118.6	114.3	112.5	108.2	139.1	107.1	105.8	110.2	123.4	
June					111	119.2	114.8	114.2	108.2	139.3	107.1	105.8	110.3	123.9	
July					111	119.5	115.2	114.1	108.3	139.4	108.4	105.9	110.3	124.3	
August						118.7	114.4								

Table 7. Wages, profits and other costs

Index numbers, 1954 = 100

	Weekly wage rates	Wage rates by industry						Income from employment(a)		Profits of companies and public corporations(a)	All property income(a)		Import prices	Materials used in manufacturing industry	Prices of all manufactured products
		Metals, metal-using	Textiles	Mining	Construction	Agriculture, forestry, fishing	Other industries and services	Total	Per unit of output		Total	Per unit of output			
1948	74.6	73.5	73.5	74.6	72.8	75.1	74.9	66.0	78.1	65.3	70.1	83.7	73	..	..
1949	76.7	76.0	77.0	74.7	74.7	77.8	76.9	70.4	80.4	68.3	73.1	83.8	74	..	..
1950	78.1	76.9	79.4	75.5	76.6	79.0	78.4	74.1	81.4	79.2	81.4	89.6	85	..	..
1951	84.6	83.5	87.1	83.3	83.0	84.5	84.7	82.5	88.8	93.6	90.0	96.8	113	..	..
1952	91.6	91.5	93.0	92.4	90.5	91.7	91.6	88.9	96.5	83.9	85.2	92.5	111	..	..
1953	95.8	95.8	96.7	95.5	95.4	95.9	95.9	93.7	97.8	89.7	91.1	95.2	101	..	..
1954	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	100.0	100.0
1955	106.9	106.8	104.9	107.3	106.2	105.6	106.3	109.3	105.5	109.8	107.4	103.7	103	103.0	102.6
1956	115.4	115.5	110.6	117.7	114.2	113.8	114.7	119.2	114.2	113.6	111.9	107.2	105	106.7	107.0
1957	121.2	121.1	114.9	124.1	120.5	119.1	120.6	125.9	118.4	119.7	117.4	110.4	107	107.4	110.4
1958	125.4	125.4	118.5	126.6	125.5	126.4	125.4	130.7	122.8	117.8	120.1	112.9	99	100.8	111.1
1959	128.7	129.0	120.6	130.4	128.9	130.6	128.7	135.9	121.8	129.6	129.3	115.9	98	101.8	111.6
1959 I	128.2	128.7	120.0	130.3	128.4	130.6	128.0	132.8	122.7	122.3	123.6	114.2	98	101.4	111.8
1959 II	128.5	129.0	120.6	130.4	129.1	130.6	128.4	135.3	122.3	129.3	128.9	116.5	97	101.2	111.3
1959 III	128.8	129.0	120.7	130.4	129.1	130.6	129.0	136.5	121.8	129.7	129.8	115.8	98	101.6	111.4
1959 IV	129.2	129.1	121.0	130.4	129.1	130.6	129.5	138.9	120.4	137.2	134.8	116.8	100	102.8	111.7
1960 I	130.5	129.5	122.5	130.6	129.2	131.7	130.6	140.6	120.8	141.6	138.1	118.6	100	103.0	111.9
1960 II	131.7	130.4	125.7	130.6	132.2	134.5	131.7	143.4	122.2				99	102.5	112.9
January	130.2	129.4	121.6	130.6	129.2	130.7	130.4						100	103.6	111.9
February	130.3	129.6	121.8	130.6	129.2	130.7	130.6						100	102.9	111.9
March	130.9	129.6	124.2	130.6	129.2	133.7	130.8						99	102.5	111.9
April	131.6	129.9	125.6	130.6	129.2	134.5	131.4						99	102.6	112.5
May	131.8	130.6	125.7	130.6	133.7	134.5	131.9						99	102.5	113.0
June	131.9	130.7	125.7	130.7	133.7	134.5	131.8						98	102.4	113.2
July	132.1	130.7	125.7	130.7	133.7	134.5	132.0						98	101.1	113.4
August														100.8	

For changes to this table see page 54.

(a) Seasonally adjusted.

Table 8. Personal income and expenditure

£ million, quarterly averages, seasonally adjusted

£ million, quarterly averages, seasonally adjusted

	Dispos- able income	Total personal savings	Con- sumers' expend- iture	Consumers' expenditure											
				Total	Food	Alco- holic drinks	Tobacco	Housing (inc. rent and rates)	Fuel, light	Cloth- ing	Durable goods			All other goods	Services
											Cars, motor cycles	Furni- ture, etc.	Radio, electric, etc.		
at current prices				at 1954 prices											
1948	2,158	28	2,130	2,677	834	201	200	235	109	274	13	56	36	238	482
1949	2,277	57	2,220	2,735	866	194	194	234	108	296	16	68	40	260	459
1950	2,395	51	2,344	2,813	905	198	196	238	113	307	17	77	45	271	446
1951	2,594	67	2,527	2,772	887	204	202	239	117	276	16	74	50	262	445
1952	2,821	162	2,659	2,756	878	202	206	244	115	271	23	67	46	262	442
1953	3,001	185	2,816	2,869	911	205	209	252	117	275	40	77	57	284	442
1954	3,158	144	3,014	3,014	946	205	214	263	122	301	55	77	74	310	448
1955	3,443	213	3,230	3,124	972	215	219	257	124	322	74	72	82	337	450
1956	3,703	297	3,406	3,157	993	220	222	261	129	336	57	70	74	346	450
1957	3,881	301	3,580	3,225	1,011	224	228	264	127	346	63	75	82	354	452
1958	4,051	282	3,769	3,305	1,026	224	233	268	137	345	84	80	90	374	446
1959	4,242	313	3,929	3,437	1,045	233	238	270	136	360	106	88	107	397	458
1958 I	4,009	280	3,729	3,285	1,022	229	232	266	137	341	79	78	87	369	445
1958 II	4,032	290	3,742	3,278	1,021	221	235	267	139	341	84	76	86	366	442
1958 III	4,051	294	3,757	3,295	1,028	220	232	268	132	347	80	79	85	376	448
1958 IV	4,112	266	3,846	3,361	1,032	226	231	269	139	352	91	88	100	383	450
1959 I	4,139	265	3,874	3,370	1,037	221	231	269	144	350	85	85	101	391	456
1959 II	4,260	331	3,929	3,457	1,051	237	240	269	133	362	107	91	115	395	457
1959 III	4,256	349	3,907	3,420	1,041	237	241	271	129	353	100	89	112	389	458
1959 IV	4,314	309	4,005	3,500	1,051	236	238	271	136	375	133	88	99	413	460
1960 I	4,390	303	4,087	3,593	1,081	240	247	273	154	372	140	91	115	418	462
1960 II	4,450	304	4,146	3,616	1,089	255	248	273	138	387	144	88	106	425	464

For changes to this table see page 54.

Table 9. Fixed investment : factory building approvals

£ million, 1954 prices, quarterly averages, seasonally adjusted

	Total	Dwellings		Industries and services											Factory building approvals(b)
		Public	Private	Total	By type of asset			By industry group(a)					By sector		
					Plant, machinery	Vehicles, ships, aircraft	Buildings, works	Fuel, power	Public services	Transport, communications	Manufacturing	Other industries, services	Public	Private	
	467	92	14	361	166	91	104	53	29	44	107	115	119	242	6.7
	508	87	17	404	181	97	126	65	35	50	121	120	151	253	14.6
	533	86	16	431	202	87	142	70	41	47	140	120	166	265	11.5
	534	84	16	434	218	78	138	70	45	43	148	115	186	248	11.7
	536	95	24	417	206	70	141	72	44	40	142	109	196	221	6.6
	593	113	42	438	209	82	147	81	46	44	137	121	212	226	9.3
	647	105	56	486	232	91	163	96	48	48	145	139	220	266	17.7
	679	85	60	534	250	104	180	102	49	50	161	161	224	310	22.8
	713	77	63	573	257	111	205	97	56	58	183	167	236	337	17.8
	743	72	63	608	273	117	218	100	61	68	192	176	253	355	15.9
	747	60	67	620	272	123	225	105	65	67	182	189	256	363	11.4
	786	60	84	642	270	132	240	116	77	70	168	199	280	362	14.5
I	749	64	63	622	272	129	221	108	61	71	183	188	265	357	12.0
II	744	62	65	617	271	122	224	104	63	69	184	186	254	363	10.4
III	745	58	68	619	273	120	226	104	69	63	184	186	252	367	11.5
IV	750	55	73	622	274	120	228	103	68	66	178	195	255	367	11.9
I	749	60	77	612	261	127	224	108	69	63	164	196	258	354	16.1
II	778	58	80	640	272	138	230	110	73	62	166	216	267	373	13.7
III	798	62	87	649	273	131	245	121	80	75	169	190	291	358	12.7
IV	819	61	92	666	274	132	260	126	79	80	172	195	303	363	15.7
I	841	59	93	689	272	148	269	117	83	80	183	212	297	392	35.3
II		60	99								195				23.1

Changes to this table see page 54.
Great Britain.

(a) Excluding legal fees, etc. (which are included in the other columns), of which the industry distribution is not known.

Table 10. Contractors' orders and work done
£ million, 1954 prices, quarterly averages

	Total	New housing	Other new work		
			Public	Industrial	Miscellaneous
Orders received by contractors					
1957	294	118	86	47	43
1958	276	115	81	40	40
1959(a) I	354	172	87	47	48
II	346	146	95	55	50
III	325	147	82	48	48
IV	380	161	107	60	52
1960 I	422	176	116	72	58
II	399	158	105	80	56
Work done by contractors(b)					
1955	275	129	67	50	29
1956	301	127	76	61	36
1957	303	123	81	60	40
1958	301	114	88	57	42
1959(a) I	325	124	95	60	46
II	322	122	96	59	45
III	339	131	98	62	48
IV	339	134	93	62	50
1960 I	344	135	93	66	50
II	359	143	91	71	54

For changes to this table see page 54.

(a) From the beginning of 1959 the figures are given according to the Revised Standard Industrial Classification 1958.

(b) Seasonally adjusted.

Table 11. Changes in the volume of stocks
£ million, 1954 prices, quarterly averages

	Total stocks (a)	Manufacturing and distribution						
		Total	Manufacturing				Distribution	
			Total	Materials and fuel	Work in progress	Finished goods	Whole- sale	Retail
Value at end 1959(b)	8.4	6.0	4.2	1.7	1.5	1.0	0.9	0.9
1955	+73	..	+63	+26	+8	+29	..	+9
1956	+66	+59	+51	+13	+24	+14	+3	+5
1957	+64	+67	+42	+20	+19	+3	+15	+10
1958	+21	+14	+8	-20	+5	+23	+2	+4
1959	+29	+15	+8	+2	+13	-7	-4	+11
1957 I	+200	+220	+110	+46	+26	+38	+60	+50
II	+85	+75	+50	-29	+57	+22	+30	-5
III	+55	+50	+35	+52	+26	-43	+15	—
IV	-85	-75	-25	+12	-33	-4	-45	-5
1958 I	+95	+113	+63	-21	+17	+67	+20	+30
II	+10	-15	+14	-61	+18	+58	-15	-15
III	+65	+47	-3	+15	+2	-19	+45	+5
IV	-85	-90	-45	-13	-19	-13	-40	-5
1959 I	+10	+22	-3	-12	+1	+8	+5	+20
II	+60	+20	-5	-8	+22	-18	—	+25
III	+60	+16	+6	+34	+17	-45	+15	-5
IV	-15	+1	+31	-4	+10	+26	-35	+5
1960 I	+160	+182	+92	+30	+13	+49	+25	+65
II		+115	+90				+15	+10

For changes to this table see page 54.

(a) This series is seasonally adjusted in table 1.

(b) £ billion.

Table 12. New orders and orders on hand

	Engineering ^(a)						Shipbuilding : merchant vessels		Textiles and clothing	
	Total		For export		For home market		New orders (d)	Orders on hand ^(e)	Net new orders ^(f)	Orders on hand ^(g)
	Net new orders ^(b)	Orders on hand ^(c)	Net new orders ^(b)	Orders on hand ^(c)	Net new orders ^(b)	Orders on hand ^(c)				
							'000 gross tons			
1954	..	97	..	93	..	99	159	4,333	..	..
1955	..	106	..	96	..	109	582	5,287	..	..
1956	..	104	..	103	..	105	619	6,442	..	..
1957	..	101	..	101	..	101	420	6,828	..	..
1958	91	88	89	86	92	89	124	5,430	..	..
1959	107	90	104	88	108	90	80	4,169	..	135
1958 I	103	100	107	101	102	100	..	6,331	..	..
II	87	96	82	95	89	96	..	5,970	..	..
III	81	92	79	90	82	92	..	5,953	..	..
IV	93	88	88	86	95	89	..	5,430	..	..
1959 I	99	87	96	84	100	88	55	5,103	..	..
II	109	87	104	84	110	88	44	4,734	105	107
III	100	87	97	84	101	88	48	4,473	108	119
IV	121	90	122	88	120	90	172	4,169	123	135
1960 I	137	97	130	95	140	98	196	4,044	106	135
II	128	102	..	..	..	..	158	3,780	103	136
1960 Jan.	126	92	105	89	134	93	..	..	103	135
Feb.	147	95	131	91	153	97	..	..	107	135
March	138	97	155	95	132	98	..	..	108	135
April	127	99	..	97	..	100	..	..	97	134
May	129	101	..	98	..	102	..	..	108	134
June	129	102	..	100	..	104	..	..	103	136
July									86	134

For definitions of the series in this table see page 54.

(a) Including certain heavy vehicles. (b) Adjusted for the lengths of calendar months, average deliveries 1958=100, at 1958 prices. (c) At end of period; January 1958=100, at 1958 average prices. (d) Quarterly rates or averages. (e) At end of period. (f) Adjusted for the lengths of calendar months, average deliveries 1959=100, at 1958 average prices. (g) At end of period, April 1959=100, at 1958 average prices.

Table 13. Credit
Quarterly averages

	Hire purchase debt	London Clearing Banks	
		Ad- vances	Liquidity ratio
	£mn, change in period	per cent	
1953	..	- 10	35.1
1954	..	+ 48	33.7
1955	..	- 11	32.5
1956	-21	+ 15	35.3
1957	+18	- 8	35.1
1958	+28	+ 91	34.0
1959	+75	+167	32.8
1958 I	+ 3	+ 36	35.9
II	+18	+112	32.8
III	+12	- 2	33.5
IV	+78	+218	33.8
1959 I	+57	+238	32.7
II	+92	+132	31.4
III	+76	+153	32.9
IV	+72	+146	34.1
1960 I	+63	+211	32.6
II	+46	+128	31.5
May	+45	+119	31.6
June	+ 6	—	31.4
July	+15	+308	31.2
August		-123	31.4

Table 14. U.K. imports and exports and changes in imported stocks

Quarterly averages

Quarterly averages.

	Imports				Exports (exc. re-exports)				Adjusted balance of visible trade (a) (b)	Terms of trade import/ export	Stock changes of mainly imported commodities				
	Value c.i.f.		Volume		Value f.o.b.		Volume				Total	Total	Food and tobacco	Indus- trial materi- als	Fuel
	As recor- ded	Adjus- ted (a)	As recor- ded	Adjus- ted (a)	As recor- ded	Adjus- ted (a)	As recor- ded	Adjus- ted (a)							
1950	645	645	89	89	538	538	101	100	- 87	100	-30.3	-33.4	-14.1	-20.1	+ 0.8
1951	970	970	100	100	642	642	100	98	-297	113	+32.0	+19.7	+10.4	+ 2.0	+ 7.3
1952	864	864	92	92	642	642	94	92	-187	106	+20.8	+20.5	+ 2.1	+13.4	+ 5.0
1953	830	830	99	99	639	639	96	94	-165	100	+22.0	+16.9	+ 9.6	+ 3.8	+ 3.5
1954	838	838	100	100	662	672	100	100	-142	100	- 5.0	- 5.0	- 2.1	- 5.7	+ 2.8
1955	965	965	112	112	719	709	107	104	-227	101	+ 2.0	+ 2.0	- 4.5	+ 1.8	+ 4.7
1956	965	974	111	112	786	781	113	111	-157	99	-13.3	-12.1	- 0.6	-10.9	- 0.6
1957	1,011	1,003	115	114	824	822	116	114	-149	96	+25.2	+21.9	+ 5.9	+ 8.0	+ 8.0
1958	937	936	114	114	794	794	111	110	-108	90	- 1.3	- 1.0	- 0.3	- 1.5	+ 0.8
1959	998	999	122	123	832	832	116	114	-134	90	+ 2.9	+ 4.0	- 2.5	- 2.7	+ 9.3
1958 I	928	923	114	113	814	806	113	111	- 83	90	-27.8	-19.7	+ 2.3	-15.5	- 6.5
1958 II	900	911	110	111	768	794	108	110	- 84	90		-31.5	-20.7	- 4.9	- 5.8
1958 III	938	945	113	114	777	777	109	107	-129	90		+14.2	- 9.3	+17.4	+ 6.1
1958 IV	985	966	121	118	817	799	115	111	-134	90		+25.3	+33.5	+25.0	+ 9.2
1959 I	941	965	117	120	792	784	111	108	-152	90	- 7.2	+ 2.5	+13.6	-10.6	- 0.4
1959 II	983	960	123	120	845	832	118	114	- 96	89		-19.1	-33.0	-10.0	+23.9
1959 III	984	996	119	121	790	834	111	116	-130	90		+ 8.7	-18.1	+15.1	+11.6
1959 IV	1,082	1,074	130	130	902	880	125	120	-159	91		+10.2	+23.4	+27.3	+ 0.7
1960 I	1,125	1,113	136	136	920	912	127	124	-168	90	+ 2.3	- 1.9	+10.0	-10.2	- 1.7
1960 II	1,141	1,128	140	139	900	885	124	120	-210			+11.7	- 9.9	+ 9.8	+11.9
April	1,121	1,125	..	138	922	897	..	121	-195	88					
May	1,169	1,167	..	143	952	894	..	121	-240	89					
June	1,152	1,110	..	136	825	864	..	118	-213	88					
July	1,145	1,164	..	143	824	816	..	111	-312	88					
August	1,146	1,155	..	142	839	891	..	121	-222						

(a) Adjusted for dock strikes and other statistical disturbances as well as for seasonal movements and for the different number of working days. Exports exclude land-lease silver. (b) Exports and re-exports less imports.

Table 15. Volume of U.K. imports, by commodity

Index numbers(a), 1954 = 100

	Food and beverages	Tobacco	Basic materials					Fuels		Semi-manufactures and manufactures mainly for industrial use				Finished manufactures	
			Total	Textile materials	Wood	Pulp	Ores and scrap	Total	Petroleum and products	Total	Iron and steel	Non-ferrous metals	Textile manufactures	Total	Machinery
Value 1959 £mn	1,437	85	931	273	142	100	123	468	467	661	40	205	98	392	203
1950	92	97	97	110	77	72	88	65	68	86	139	78	121	74	80
1951	101	113	102	96	120	87	82	86	88	111	150	91	152	76	86
1952	91	71	90	88	83	73	90	83	87	97	352	103	71	107	142
1953	102	104	101	110	101	82	95	90	94	86	198	85	65	115	118
1954	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1955	107	111	106	98	114	118	112	121	107	126	363	109	107	122	124
1956	109	102	102	100	92	113	114	115	112	121	379	101	120	136	137
1957	114	103	106	101	101	112	126	114	115	122	215	110	129	152	145
1958	120	101	94	89	89	111	94	124	129	119	139	114	124	166	153
1959	120	97	100	103	98	120	91	143	151	135	136	121	149	201	178
1958 I	120	51	95	98	57	102	104	114	118	125	194	114	139	160	147
1958 II	119	68	92	92	74	110	106	116	121	113	153	107	108	159	147
1958 III	117	133	90	64	126	113	87	128	134	118	116	124	111	169	150
1958 IV	124	152	97	100	100	118	77	137	144	122	93	110	139	178	167
1959 I	128	42	93	110	59	114	74	134	140	120	96	115	135	166	161
1959 II	121	78	100	109	90	115	76	154	162	131	149	121	135	205	191
1959 III	111	105	101	85	135	114	104	144	151	134	134	121	146	209	171
1959 IV	122	163	107	106	108	137	110	142	150	153	163	128	179	225	188
1960 I	127	74	107	111	70	143	118	159	167	166	227	146	196	276	208
1960 II	124	70	108	95	108	148	131	154	162	177	370	154	190	327	228

a) Unadjusted.

Table 16. Volume of U.K. exports, by commodity and area

Index numbers, 1954 = 100, seasonally adjusted

	By commodity											By area			
	Food, bever- ages, tobacco	Basic mater- ials, fuels	Manufactures									Sterling area (b)	Other primary pro- ducers	North America	Western Europe
			Total	Metals and engineering					Textiles	Chem- icals	Other manu- factures (a)				
				Total	Metals	Metal goods (a)	Machin- ery	Trans- port equip- ment							
<i>Value 1959 £mn</i>	190	249	2,809	1,918	304	186	857	570	248	293	349	1,374	356	567	911
1950	93	78	106	102	106	101	99	105	125	79	121	94	129	105	94
1951	95	61	105	100	80	103	104	101	126	92	118	101	114	100	90
1952	91	77	96	98	84	97	106	93	94	77	100	91	111	94	89
1953	94	93	96	97	94	105	100	92	103	79	97	94	93	112	96
1954	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1955	106	100	109	110	113	114	110	106	96	117	112	106	102	115	107
1956	115	103	115	118	126	110	117	121	92	126	113	105	113	137	116
1957	124	96	118	121	139	105	120	123	92	137	113	105	120	143	116
1958	121	98	113	118	135	90	114	127	79	135	112	101	114	153	107
1959	118	106	117	121	148	89	118	128	79	155	115	96	110	187	116
1958 I	113	97	114	118	126	93	116	126	87	135	113	105	116	147	107
II	121	92	107	112	128	88	109	118	76	127	107	97	112	147	102
III	128	100	116	123	140	85	117	140	77	143	110	104	119	148	112
IV	119	101	114	120	148	94	113	126	74	133	117	98	110	168	107
1959 I	100	106	110	114	135	82	110	124	74	142	110	90	117	167	109
II	117	107	118	121	130	92	118	135	81	156	115	97	109	197	116
III	127	101	118	122	162	86	119	124	79	164	110	96	108	189	119
IV	128	110	123	127	164	96	123	128	82	160	126	103	108	196	123
1960 I	126	117	127	132	160	95	128	142	85	168	117	99	130	207	127
II	122	107	125	128	146	101	126	135	80	181	119	101	117	181	128

(a) Unadjusted.

(b) Including Iraq.

Table 17. World industrial production

Index numbers, 1953 = 100, seasonally adjusted

	World (a) (b)	U.S.A.	Canada	U.K.	Continental O.E.E.C. (c)	Western Germany	France	Italy	Belgium	Sweden	Netherlands	Austria	Latin America (a)	Japan (a)	U.S.S.R.
1950	84	84	83	94	82	72	89	78	93	95	88	86	90	55	69
1951	91	90	90	98	92	85	99	89	106	100	91	97	97	74	80
1952	93	93	94	94	94	91	98	91	101	98	91	98	99	82	89
1953	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1954	101	93	100	108	109	112	109	109	106	104	110	114	107	108	113
1955	112	104	110	114	121	129	117	119	116	111	118	133	118	117	127
1956	117	109	120	114	130	139	128	128	123	115	124	138	126	144	141
1957	121	110	120	116	138	147	139	138	123	119	127	146	134	167	155
1958	118	102	118	114	142	152	145	143	115	118	127	150	136	169	170
1959	130	116	127	121	150	162	152	158	119	123	139	156		210	189
1958 I	116	99	117	116	142	151	155	141	119	120	124	153	129	167	
II	116	98	118	114	142	150	154	139	113	120	126	151	135	163	
III	115	103	117	113	142	151	152	142	115	119	127	151	141	166	
IV	124	108	119	115	145	154	152	148	114	120	129	150	140	179	
1959 I	125	112	125	116	145	155	151	153	114	122	133	152	134	190	
II	133	120	128	120	148	159	157	153	118	122	137	152	143	203	
III	126	115	127	122	153	162	160	157	119	122	138	156	139	214	
IV	134	115	130	127	159	171	169	169	124	128	143	159		231	
1960 I	139	121	133	130	165	176	168	177	126	130	153	164		252	
II	140	120	130	131	168	178	170	181	128	129	160	164		256	
April		120	129	132	166	176	169	179	127	128	159	169		256	
May		121	130	131	167	177	171	178	129	129	162	163		255	
June		120	130	130	170	182	171	186	130	130	160	160		260	
July		121		131		177								261	
August		120													

(a) World, Latin America and Japan are not seasonally adjusted.

(b) Excludes U.S.S.R., Eastern Europe and China.

(c) Excludes Spain.

Table 18. Trade of industrial countries

\$ billion, quarterly averages

	Total (a)			U.S.A.			Canada			U.K.			Continental O.E.E.C. (a)		
	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
1948	8.29	9.15	-0.86	3.17	2.01	+1.16	0.84	0.76	+0.08	1.65	2.09	-0.44	2.57	4.12	-1.54
1949	8.66	9.03	-0.37	3.02	1.88	+1.14	0.77	0.73	+0.04	1.71	2.13	-0.42	3.03	4.06	-1.03
1950	8.43	9.38	-0.95	2.57	2.40	+0.17	0.77	0.80	-0.03	1.58	1.82	-0.24	3.31	4.12	-0.81
1951	11.32	12.77	-1.45	3.76	2.97	+0.79	1.01	1.05	-0.04	1.90	2.73	-0.84	4.31	5.52	-1.20
1952	11.99	12.43	-0.43	3.80	2.92	+0.89	1.19	1.12	+0.07	1.91	2.43	-0.52	4.77	5.45	-0.68
1953	12.16	12.42	-0.26	3.95	2.95	+1.00	1.15	1.21	-0.06	1.88	2.34	-0.46	4.86	5.32	-0.46
1954	12.61	12.78	-0.17	3.78	2.76	+1.02	1.11	1.14	-0.03	1.94	2.36	-0.42	5.37	5.92	-0.55
1955	13.85	14.52	-0.67	3.89	3.09	+0.80	1.20	1.29	-0.09	2.12	2.72	-0.60	6.14	6.80	-0.66
1956	15.78	16.33	-0.55	4.77	3.45	+1.32	1.32	1.57	-0.25	2.32	2.72	-0.40	6.75	7.78	-1.03
1957	17.23	17.69	-0.46	5.22	3.58	+1.64	1.37	1.59	-0.22	2.42	2.85	-0.43	7.51	8.60	-1.08
1958	16.42	16.41	+0.01	4.47	3.53	+0.94	1.36	1.45	-0.09	2.35	2.65	-0.30	7.52	8.03	-0.50
1959	17.38	17.97	-0.57	4.39	4.14	+0.26	1.42	1.59	-0.17	2.42	2.79	-0.37	8.28	8.54	-0.26
1956 III	15.42	16.01	-0.59	4.71	3.40	+1.31	1.37	1.53	-0.16	2.15	2.62	-0.47	6.57	7.64	-1.07
IV	17.29	17.17	+0.12	5.23	3.46	+1.77	1.43	1.63	-0.20	2.46	2.73	-0.27	7.45	8.45	-1.00
1957 I	17.10	17.91	-0.81	5.45	3.54	+1.91	1.23	1.53	-0.30	2.45	2.96	-0.51	7.32	8.82	-1.50
II	17.37	18.21	-0.84	5.47	3.51	+1.96	1.35	1.75	-0.40	2.47	2.91	-0.44	7.41	8.76	-1.36
III	16.79	17.26	-0.47	4.93	3.54	+1.39	1.47	1.58	-0.11	2.31	2.79	-0.48	7.31	8.28	-0.97
IV	17.62	17.31	+0.31	5.01	3.71	+1.30	1.42	1.48	-0.06	2.45	2.75	-0.30	7.98	8.50	-0.52
1958 I	15.96	16.32	-0.35	4.41	3.48	+0.93	1.18	1.31	-0.13	2.41	2.61	-0.20	7.25	8.11	-0.86
II	16.22	16.31	-0.08	4.58	3.46	+1.12	1.44	1.55	-0.11	2.27	2.55	-0.28	7.25	7.97	-0.72
III	15.84	15.80	+0.03	4.18	3.37	+0.82	1.36	1.39	-0.03	2.30	2.65	-0.35	7.31	7.67	-0.36
IV	17.66	17.21	+0.45	4.73	3.83	+0.90	1.45	1.54	-0.09	2.42	2.77	-0.35	8.27	8.35	-0.08
1959 I	15.61	16.42	-0.82	4.14	3.89	+0.25	1.14	1.38	-0.24	2.31	2.63	-0.33	7.30	7.73	-0.43
II	17.29	18.18	-0.89	4.46	4.19	+0.27	1.49	1.77	-0.28	2.46	2.75	-0.30	8.08	8.52	-0.44
III	17.14	17.70	-0.56	4.35	4.17	+0.18	1.46	1.59	-0.13	2.29	2.75	-0.46	8.15	8.28	-0.13
IV	19.50	19.57	-0.06	4.64	4.31	+0.33	1.61	1.63	-0.03	2.62	3.03	-0.41	9.60	9.64	-0.04
1960 I	19.33	19.93	-0.60	4.89	4.13	+0.78	1.42	1.51	-0.09	2.68	3.15	-0.47	9.45	10.01	-0.56
II	19.77	20.34	-0.58	5.34	4.17	+1.17	1.40	1.66	-0.26	2.61	3.21	-0.60	9.45	10.19	-0.74

() Excludes W. Germany in 1948 and 1949 and Spain throughout.

\$ billion, quarterly averages

	Western Germany			France			Italy			Netherlands			Japan		
	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
1948	..	..	..	0.50	0.86	-0.36	0.27	0.38	-0.12	0.26	0.47	-0.21	0.06	0.17	-0.11
1949	..	..	..	0.68	0.82	-0.14	0.28	0.39	-0.11	0.34	0.46	-0.13	0.13	0.23	-0.10
1950	0.49	0.67	+0.18	0.76	0.76	—	0.30	0.37	-0.07	0.35	0.51	-0.16	0.20	0.24	-0.04
1951	0.87	0.87	-0.01	1.02	1.11	-0.09	0.41	0.54	-0.13	0.49	0.64	-0.15	0.34	0.50	-0.16
1952	1.00	0.95	+0.05	0.96	1.08	-0.12	0.35	0.58	-0.24	0.53	0.56	-0.03	0.32	0.51	-0.19
1953	1.10	0.94	+0.15	0.95	0.99	-0.04	0.38	0.60	-0.23	0.54	0.59	-0.06	0.32	0.60	-0.28
1954	1.31	1.14	+0.17	1.05	1.06	-0.01	0.41	0.61	-0.20	0.60	0.71	-0.11	0.41	0.60	-0.19
1955	1.53	1.45	+0.09	1.23	1.18	+0.04	0.46	0.68	-0.21	0.67	0.80	-0.13	0.50	0.62	-0.11
1956	1.84	1.65	+0.19	1.13	1.39	-0.25	0.54	0.79	-0.26	0.72	0.93	-0.21	0.62	0.81	-0.18
1957	2.14	1.87	+0.27	1.28	1.54	-0.26	0.63	0.91	-0.27	0.77	1.03	-0.25	0.71	1.07	-0.36
1958	2.20	1.84	+0.36	1.28	1.40	-0.12	0.64	0.80	-0.16	0.81	0.91	-0.10	0.72	0.76	-0.04
1959	2.45	2.12	+0.33	1.40	1.27	+0.13	0.72	0.83	-0.11	0.90	0.98	-0.08	0.86	0.90	-0.04
1956 III	1.82	1.69	+0.13	1.06	1.33	-0.27	0.55	0.76	-0.21	0.70	0.94	-0.24	0.62	0.82	-0.20
IV	2.08	1.83	+0.25	1.23	1.48	-0.25	0.60	0.83	-0.23	0.76	0.99	-0.23	0.72	0.90	-0.18
1957 I	2.00	1.81	+0.19	1.33	1.69	-0.36	0.59	0.92	-0.33	0.76	1.08	-0.32	0.65	1.06	-0.41
II	2.11	1.81	+0.30	1.29	1.68	-0.39	0.63	0.94	-0.31	0.72	1.04	-0.33	0.67	1.28	-0.61
III	2.15	1.87	+0.27	1.16	1.43	-0.27	0.65	0.85	-0.20	0.78	1.01	-0.23	0.77	1.07	-0.30
IV	2.31	2.00	+0.32	1.32	1.36	-0.04	0.67	0.92	-0.25	0.84	0.97	-0.14	0.76	0.87	-0.11
1958 I	2.06	1.82	+0.23	1.27	1.51	-0.24	0.62	0.82	-0.20	0.77	0.87	-0.10	0.71	0.80	-0.09
II	2.13	1.72	+0.41	1.22	1.52	-0.30	0.64	0.81	-0.17	0.76	0.90	-0.14	0.68	0.78	-0.09
III	2.23	1.83	+0.40	1.15	1.26	-0.11	0.65	0.76	-0.11	0.81	0.88	-0.07	0.69	0.73	-0.04
IV	2.39	1.99	+0.40	1.47	1.32	+0.15	0.66	0.82	-0.16	0.88	0.97	-0.09	0.80	0.72	+0.08
1959 I	2.12	1.83	+0.29	1.18	1.20	-0.02	0.64	0.77	-0.13	0.81	0.90	-0.09	0.73	0.79	-0.06
II	2.39	2.08	+0.31	1.42	1.31	+0.11	0.65	0.84	-0.19	0.88	0.99	-0.11	0.81	0.95	-0.14
III	2.45	2.15	+0.30	1.34	1.14	+0.20	0.77	0.82	-0.05	0.89	0.98	-0.09	0.88	0.90	-0.02
IV	2.83	2.42	+0.41	1.68	1.44	+0.23	0.84	0.92	-0.08	1.03	1.06	-0.03	1.03	0.96	+0.07
1960 I	2.72	2.37	+0.35	1.81	1.62	+0.19	0.88	1.16	-0.28	0.98	1.11	-0.13	0.89	1.13	-0.24
II	2.74	2.52	+0.22	1.69	1.58	+0.11	0.92	1.17	-0.25	0.96	1.11	-0.14	0.96	1.11	-0.16

Table 19. Trade of primary producing countries

\$ billion, quarterly averages

	Total			Overseas sterling area (excluding oil producers)			Australia			New Zealand			India		
	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
1948	4.99	5.65	-0.66	2.05	2.43	-0.38	0.41	0.35	+0.06	0.12	0.11	+0.01	0.34	0.43	-0.09
1949	4.86	5.68	-0.82	2.04	2.55	-0.51	0.40	0.40	—	0.14	0.11	+0.03	0.33	0.51	-0.18
1950	5.61	5.30	+0.31	2.24	2.23	+0.02	0.42	0.41	+0.01	0.13	0.11	+0.01	0.29	0.29	—
1951	7.08	7.40	-0.31	2.98	3.19	-0.21	0.51	0.61	-0.10	0.17	0.15	+0.02	0.40	0.45	-0.05
1952	6.23	7.29	-1.06	2.50	2.97	-0.47	0.42	0.49	-0.07	0.17	0.19	-0.03	0.32	0.42	-0.10
1953	6.35	6.44	-0.09	2.41	2.52	-0.11	0.49	0.37	+0.13	0.16	0.13	+0.03	0.28	0.30	-0.02
1954	6.55	6.81	-0.26	2.40	2.66	-0.26	0.41	0.47	-0.05	0.17	0.17	—	0.30	0.32	-0.03
1955	6.98	7.41	-0.43	2.61	3.01	-0.40	0.44	0.54	-0.10	0.18	0.20	-0.02	0.32	0.35	-0.03
1956	7.36	7.85	-0.50	2.72	3.17	-0.45	0.47	0.49	-0.02	0.19	0.19	+0.01	0.32	0.43	-0.11
1957	7.62	8.79	-1.17	2.85	3.50	-0.65	0.55	0.49	+0.06	0.19	0.21	-0.01	0.35	0.56	-0.21
1958	7.20	8.29	-1.08	2.53	3.30	-0.77	0.42	0.51	-0.10	0.17	0.20	-0.02	0.30	0.45	-0.15
1959	7.63	8.00	-0.37	2.87	3.34	-0.48	0.50	0.53	-0.03	0.20	0.16	+0.04	0.33	0.46	-0.13
1956 III	7.09	7.78	-0.69	2.55	3.16	-0.61	0.41	0.48	-0.08	0.18	0.20	-0.02	0.30	0.44	-0.14
IV	7.51	8.09	-0.58	2.89	3.22	-0.32	0.59	0.44	+0.15	0.16	0.18	-0.02	0.35	0.44	-0.09
1957 I	7.84	8.32	-0.48	3.07	3.41	-0.34	0.62	0.45	+0.17	0.23	0.18	+0.04	0.35	0.55	-0.20
II	7.62	8.90	-1.28	2.84	3.53	-0.69	0.57	0.48	+0.09	0.20	0.20	—	0.31	0.60	-0.29
III	7.41	8.90	-1.49	2.68	3.55	-0.87	0.46	0.50	-0.05	0.19	0.23	-0.04	0.37	0.57	-0.20
IV	7.59	9.03	-1.44	2.80	3.51	-0.70	0.55	0.51	+0.05	0.15	0.22	-0.06	0.35	0.51	-0.16
1958 I	7.35	8.37	-1.02	2.65	3.43	-0.77	0.42	0.52	-0.09	0.22	0.20	+0.02	0.30	0.47	-0.17
II	7.03	8.24	-1.21	2.43	3.28	-0.85	0.39	0.51	-0.12	0.19	0.21	-0.01	0.24	0.44	-0.20
III	6.94	8.01	-1.07	2.43	3.16	-0.73	0.37	0.52	-0.16	0.15	0.19	-0.04	0.34	0.42	-0.08
IV	7.50	8.53	-1.04	2.62	3.36	-0.73	0.48	0.51	-0.02	0.14	0.20	-0.06	0.33	0.49	-0.16
1959 I	7.33	7.44	-0.11	2.62	3.10	-0.48	0.46	0.49	-0.03	0.22	0.14	+0.08	0.28	0.46	-0.18
II	7.67	8.00	-0.33	2.82	3.35	-0.53	0.49	0.53	-0.03	0.22	0.15	+0.07	0.28	0.52	-0.24
III	7.54	8.02	-0.47	2.82	3.31	-0.48	0.45	0.53	-0.08	0.17	0.16	+0.01	0.35	0.41	-0.05
IV	7.97	8.54	-0.56	3.20	3.62	-0.41	0.60	0.57	+0.03	0.20	0.19	-0.01	0.40	0.43	-0.03
1960 I				3.17	3.68	-0.51	0.54	0.62	-0.07	0.28	0.18	+0.10	0.33	0.44	-0.11
II				3.08	3.88	-0.81	0.49	0.65	-0.16	0.21	0.18	+0.03	0.31	0.53	-0.21

\$ billion, quarterly averages

	South Africa			Latin America excluding Venezuela			Oil producing countries						Others (excluding oil producers)		
							Sterling			Non-Sterling					
	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
1948	0.15	0.40	-0.25	1.36	1.35	—	0.12	0.12	—	0.58	0.47	+0.11	0.88	1.27	-0.39
1949	0.16	0.34	-0.18	1.15	1.15	—	0.14	0.13	+0.02	0.65	0.48	+0.17	0.88	1.37	-0.49
1950	0.17	0.25	-0.08	1.41	1.24	+0.17	0.19	0.13	+0.06	0.75	0.46	+0.28	1.02	1.23	-0.22
1951	0.22	0.38	-0.15	1.61	1.77	-0.16	0.26	0.16	+0.10	0.85	0.55	+0.30	1.38	1.73	-0.35
1952	0.22	0.34	-0.12	1.40	1.71	-0.31	0.30	0.17	+0.13	0.80	0.59	+0.21	1.22	1.84	-0.62
1953	0.23	0.35	-0.12	1.54	1.41	+0.14	0.32	0.21	+0.12	0.84	0.59	+0.25	1.23	1.72	-0.49
1954	0.26	0.36	-0.10	1.55	1.60	-0.05	0.35	0.20	+0.15	0.98	0.65	+0.33	1.27	1.71	-0.43
1955	0.26	0.37	-0.11	1.53	1.62	-0.09	0.40	0.22	+0.18	1.09	0.72	+0.36	1.36	1.84	-0.48
1956	0.30	0.38	-0.09	1.63	1.67	-0.04	0.42	0.24	+0.18	1.19	0.81	+0.38	1.39	1.96	-0.57
1957	0.32	0.42	-0.10	1.57	1.87	-0.30	0.44	0.25	+0.19	1.28	1.02	+0.25	1.48	2.16	-0.68
1958	0.28	0.43	-0.15	1.47	1.73	-0.26	0.49	0.25	+0.24	1.32	0.96	+0.36	1.38	2.04	-0.66
1959	0.31	0.38	-0.07	1.48	1.58	-0.08	0.51	0.25	+0.25	1.37	0.92	+0.45	1.42	1.92	-0.50
1956 III	0.30	0.37	-0.07	1.58	1.66	-0.08	0.43	0.23	+0.20	1.24	0.78	+0.46	1.29	1.95	-0.66
IV	0.34	0.36	-0.02	1.62	1.78	-0.16	0.37	0.23	+0.14	1.17	0.87	+0.30	1.46	1.99	-0.53
1957 I	0.33	0.41	-0.07	1.68	1.71	-0.03	0.38	0.22	+0.16	1.17	0.95	+0.21	1.53	2.02	-0.48
II	0.32	0.42	-0.10	1.56	1.88	-0.32	0.45	0.24	+0.21	1.30	0.97	+0.32	1.47	2.28	-0.81
III	0.30	0.43	-0.13	1.51	1.91	-0.41	0.48	0.27	+0.21	1.33	1.02	+0.31	1.43	2.16	-0.73
IV	0.34	0.43	-0.09	1.55	1.94	-0.39	0.45	0.26	+0.19	1.30	1.14	+0.16	1.49	2.18	-0.69
1958 I	0.29	0.48	-0.19	1.46	1.67	-0.21	0.48	0.25	+0.24	1.31	0.99	+0.32	1.44	2.03	-0.59
II	0.29	0.45	-0.16	1.46	1.76	-0.30	0.49	0.25	+0.24	1.25	0.92	+0.33	1.39	2.03	-0.64
III	0.26	0.40	-0.15	1.42	1.76	-0.34	0.49	0.25	+0.25	1.33	0.91	+0.42	1.27	1.93	-0.66
IV	0.28	0.38	-0.10	1.53	1.74	-0.21	0.50	0.25	+0.25	1.41	1.01	+0.40	1.43	2.17	-0.74
1959 I	0.28	0.36	-0.08	1.45	1.34	+0.11	0.51	0.25	+0.25	1.43	0.97	+0.46	1.32	1.76	-0.44
II	0.31	0.39	-0.08	1.52	1.57	-0.05	0.51	0.25	+0.26	1.28	0.90	+0.38	1.53	1.92	-0.39
III	0.30	0.36	-0.06	1.56	1.68	-0.12	0.50	0.25	+0.25	1.30	0.89	+0.40	1.34	1.91	-0.57
IV	0.34	0.39	-0.05	1.38	1.66	-0.28	0.50	0.26	+0.24	1.47	0.91	+0.56	1.50	2.09	-0.59
1960 I	0.32	0.42	-0.10	1.47	1.60	-0.14	0.53	0.25	+0.28				1.51	2.06	-0.55
II	0.33	0.45	-0.12	1.57	1.69	-0.12	0.56	0.26	+0.30						

Table 20. Industrial countries : imports by volume and import and export prices

Index numbers, 1953 = 100

	Volume of imports						Import prices				Export prices				
	U.S.A.	U.K.	OEEC. incl. U.K.		Western Germany	France	U.S.A.	U.K.	Western Germany	France	U.S.A.	U.K.	Western Germany	France	Japan
			From outside	Intra-trade											
1950	92	90	92	84	73	90	88	84	98	87	88	84	78	82	82
1951	91	101	98	92	75	101	111	112	123	114	101	99	98	96	122
1952	96	93	96	90	90	100	105	110	113	111	100	104	104	103	108
1953	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1954	93	101	107	112	123	109	103	99	98	99	99	99	98	94	97
1955	103	113	120	127	153	123	102	102	100	98	100	101	98	95	93
1956	112	112	130	136	172	143	104	104	102	99	103	105	101	100	96
1957	115	116	138	145	193	151	105	106	103	104	107	110	104	102	97
1958	119	116	139	144	206	150	100	98	94	95	106	109	103	98	91
1959	142	124	143	165	248	147	98	97	90	88	107	108	100	90	91
1956 III	111	108	128	131	174	140	104	102	102	98	103	105	102	101	97
IV	114	110	134	150	193	150	105	106	101	101	104	106	102	101	97
1957 I	113	119	142	145	185	163	107	109	104	106	107	109	103	103	99
II	111	115	140	143	184	164	106	109	104	105	107	109	104	103	98
III	115	113	132	140	191	139	105	105	103	105	107	111	104	103	97
IV	120	116	138	153	211	139	104	101	100	100	108	110	104	98	95
1958 I	115	114	138	140	198	160	102	98	98	96	107	109	103	98	93
II	115	112	136	142	191	163	101	98	95	95	106	109	103	99	91
III	115	115	136	141	209	134	100	97	93	96	105	109	103	98	90
IV	131	122	146	154	228	143	99	98	92	94	106	108	102	96	89
1959 I	134	118	139	146	210	140	98	97	92	87	107	108	101	87	89
II	144	125	148	161	243	151	98	96	90	88	107	108	101	90	90
III	143	121	144	159	253	132	98	97	90	88	107	107	100	90	91
IV	146	132	159	190	285	166	99	99	90	89	107	109	100	92	93
1960 I	143	138	172	188	278	184	100	99	90	89	108	110	101	95	94
II	141	142			290	180	100	98	91	88	108	110	101	95	94

Table 21. Industrial countries' exports of manufactures

	Volume							Value, total	Shares					
	Total	U.S.A. (a)	U.K.	Western Germany	France	Japan	Others (b)		U.S.A. (a)	U.K.	Western Germany	France	Japan	Others (b)
	Index numbers, 1953 = 100								\$ bn., quarterly averages	Per cent of total value				
1950	86	86	110	42	98	81	84	5.0	27.3	25.5	7.3	9.9	3.4	26.6
1951	100	103	109	72	118	89	100	7.0	26.6	21.9	10.0	10.0	4.3	27.2
1952	98	102	100	89	95	94	98	6.9	26.2	21.5	12.0	9.2	3.8	27.3
1953	100	100	100	100	100	100	100	6.9	25.9	21.2	13.3	9.0	3.8	26.8
1954	111	106	104	123	110	140	108	7.4	25.2	20.3	14.8	9.0	4.7	26.0
1955	125	115	113	149	123	186	122	8.5	24.5	19.6	15.4	9.3	5.1	26.1
1956	136	128	120	174	114	222	133	9.6	25.3	19.0	16.4	7.8	5.7	25.8
1957	146	135	123	201	128	250	140	10.7	25.4	18.0	17.5	8.0	6.0	25.1
1958	145	122	118	212	139	255	143	10.5	23.3	17.8	18.6	8.6	6.0	25.7
1959	157	117	122	233	170	303	159	11.3	21.3	17.3	19.1	9.2	6.7	26.4
1957 I	144	135	125	183	134	265	137	10.5	25.7	18.4	16.4	8.6	5.5	25.3
II	149	147	126	198	132	240	140	10.9	26.8	18.1	16.9	8.2	5.5	24.6
III	143	128	118	201	115	269	139	10.4	24.8	17.8	18.2	7.4	6.6	25.2
IV	150	132	122	222	133	265	144	10.9	24.5	17.6	18.6	7.8	6.2	25.3
1958 I	141	123	121	195	134	255	135	10.3	24.2	18.6	17.4	8.5	6.1	25.2
II	144	127	115	210	130	246	142	10.4	24.4	17.5	18.1	8.3	5.8	25.9
III	141	113	116	214	125	239	141	10.1	22.3	18.1	19.6	8.1	5.9	26.0
IV	154	123	120	230	165	279	153	11.1	22.5	17.0	19.1	9.5	6.1	25.8
1959 I	143	115	116	205	149	263	139	10.2	23.1	18.4	18.3	8.7	6.2	25.2
II	158	123	125	230	174	290	155	11.4	21.9	17.8	18.7	9.5	6.4	25.8
III	155	115	117	231	159	305	160	11.1	21.3	16.8	19.5	8.8	6.9	26.7
IV	173	117	129	268	198	352	182	12.7	19.3	16.6	19.9	9.8	7.1	27.5
1960 I	172	127	134	254	208	294	175	12.8	20.8	17.0	18.8	10.5	6.1	26.8
II	177	139	133	257	194	328	180	13.1	22.2	16.6	18.6	9.7	6.6	26.3

(a) Excluding special category.

(b) Belgium-Luxembourg, Canada, Italy, Netherlands, Sweden and Switzerland.

Table 22. The United States^(a)Quarterly averages, seasonally adjusted ^(b)

	Gross national product	Consumers' expenditure		Public spending on goods and services		Gross private fixed investment		Value of physical changes in stocks	Net foreign investment	Durable goods		Building and contracting orders	Unemployment (c)	Employment (b)	Consumer prices (b)	
		Durable goods	Other goods and services	Federal	Other	Dwellings	Other			Manufacturers' sales	Manufacturers' new orders					
\$ billion, at constant 1954 prices										\$ billion at current prices		per cent	millions	1954 = 100		
1950	79.5	8.03	46.2	6.2	5.88	3.88	8.30	1.80	-0.70	26.41	30.95	4.6	5.0	59.96	89.5	
1951	85.5	7.30	47.4	10.4	6.03	3.23	8.80	2.43	0.03	31.13	38.03	5.0	3.0	61.01	96.7	
1952	88.4	7.13	49.0	13.7	6.13	3.20	8.75	0.75	-0.05	32.81	35.06	5.3	2.7	61.04	98.9	
1953	92.3	8.28	50.5	15.1	6.38	3.40	9.13	0.13	-0.63	37.13	33.10	5.6	2.5	61.95	99.7	
1954	90.8	8.10	51.4	12.2	6.93	3.85	8.78	-0.40	-0.10	33.71	30.47	6.3	5.0	60.89	100.0	
1955	98.2	9.90	54.1	11.3	7.43	4.55	9.55	1.53	-0.15	39.24	41.56	7.6	4.0	62.94	99.7	
1956	100.2	9.50	56.6	10.4	7.65	4.05	10.28	1.13	0.63	41.42	43.33	7.9	3.8	64.71	101.2	
1957	102.1	9.63	58.1	10.8	8.08	3.85	10.28	0.40	0.95	42.48	39.26	8.0	4.3	65.01	104.7	
1958	100.2	8.93	59.4	11.1	8.60	4.05	8.63	-0.55	0	37.21	36.43	8.8	6.8	63.97	107.6	
1959	107.0	10.20	62.1	10.9	9.13	4.85	9.12	1.30	-0.65	43.57	44.81	9.1	5.5	65.58	108.6	
1958	I	97.8	8.80	58.4	10.7	8.43	3.85	9.00	-1.60	0.20	36.35	32.88	7.8	6.5	62.18	106.9
	II	98.3	8.75	59.0	11.0	8.45	3.83	8.53	-1.33	0.03	35.26	34.50	9.0	7.2	63.98	107.7
	III	100.2	8.83	59.9	11.1	8.65	4.08	8.40	-0.80	0.13	37.36	37.55	9.8	7.4	65.06	107.8
	IV	102.7	9.38	60.2	11.3	8.88	4.45	8.53	0.28	-0.35	39.85	40.78	8.7	6.4	64.64	107.8
1959	I	105.2	9.70	60.9	11.2	9.10	4.83	8.70	1.70	-0.68	41.81	44.14	9.1	6.0	63.09	107.8
	II	108.5	10.40	62.1	11.1	9.20	5.10	9.05	2.53	-0.95	46.45	47.17	9.7	5.1	66.12	108.4
	III	106.6	10.30	62.4	10.9	9.25	4.90	9.28	—	-0.43	43.51	44.21	9.1	5.4	67.06	108.9
	IV	107.3	10.28	62.9	10.6	9.05	4.58	9.33	0.95	-0.38	42.54	43.59	8.8	5.8	66.06	109.3
1960	I	110.1	10.45	63.3	10.5	9.45	4.58	9.53	2.45	-0.03	46.29	43.63	8.4	5.1	64.27	109.4
	II	110.6	10.48	64.1	10.5	9.63	4.55	9.95	1.20	0.18	44.94	43.49	8.8	5.1	67.32	110.0
March						5.33(d)					45.51	43.92	8.4	5.4	64.27	109.5
April						5.29(d)					45.00	43.41	9.3	5.0	66.16	109.9
May						5.26(d)					45.18	44.04	8.5	4.9	67.21	110.0
June						5.27(d)					44.64	43.02	8.6	5.5	68.58	110.2
July											44.43	42.18		5.4	68.69	110.3
August													5.9	68.28		

(a) The U.S. index of industrial production is shown in table 17. (b) Employment and consumer prices are not seasonally adjusted. (c) Per cent of civilian labour force. (d) Figures at current prices.

Table 23. Balance of payments : United Kingdom and sterling area

£ million

	U.K. current transactions				U.K. long-term capital		Balancing item	U.K. short-term capital, etc.					Sterling-area balance with non-sterling world		
	Imports	Exports	Invisibles	Balance	Inter-Government etc.	Other		Overseas sterling holdings		Reserves (a)	Other short-term capital	U.K. current balance	Overseas sterling area		
								Countries					Non-territorial	Current balance	Net capital receipts
								Sterling area	Other						
1952	2,959	2,831	+355	+227	—	—180	+48	-104	-254	+1	+175	+87	-121	+75	+257
1953	2,896	2,677	+398	+179	-31	-210	+45	+235	+39	-56	-240	+39	+27	+146	+151
1954	3,020	2,825	+399	+204	-20	-220	+19	+106	+104	-35	-87	-71	-56	+22	+152
1955	3,432	3,076	+264	-92	-53	-130	+119	-60	-67	-7	+229	+61	-287	+7	+136
1956	3,466	3,402	+256	+192	-51	-190	+112	-34	-120	+200(b)	-42(b)	-67	-154	+59	+158
1957	3,569	3,538	+265	+234	+63 (c)	-260	+160	-122	-27	-24	-13(c)	-11	-133	-132	+283
1958	3,330	3,428	+251	+349	-49	-210	+123	-89	+169	-22	-284	+13	-78	-214	+392
1959	3,616	3,556	+199	+139	-353 (e)	-200	+42	+185	-31	+82(d) (e)	+119(d) (e)	+17	-74	+31	+306
1958 I	828	885	+84	+141	-1	-30	+97	-69	+39	+5	-177	-5	-10	-95	+206
1958 II	800	836	+49	+85	-15	-70	+56	-2	+33	-19	-110	+42			
1958 III	845	838	+93	+86	+3	-60	-19	-45	+39	+5	-15	+6			
1958 IV	857	870	+24	+37	-36	-50	-11	+27	+58	-13	+18	-30			
1959 I	864	851	+33	+20	-19	-20	+78	+55	-71	-85(d)	-25(d)	+67	+37	+34	+169
1959 II	887	903	+80	+96	-178 (e)	-50	-29	+75	-33	+171(e)	-12(e)	-40			
1959 III	894	853	+84	+43	-19	-60	+16	+28	+36	-4	-40	—			
1959 IV	971	949	-2	-20	-137(f)	-70	-23	+27	+37	—	+196(f)	-10			
1960 I	972	984	+32	+44	-17	-30	+30	-34	+19	-17	-16	+21	-111	-3	+137
1960 II	996	957	+30	-9	-21	-70	+35	+4	+118	-27	-40	+10			

(a) A plus sign denotes a fall in the reserves and a minus sign a rise.

(b) U.K. acquired U.S. dollars to the value of £201 million from the International Monetary Fund (I.M.F.) in exchange for sterling.

(c) U.K. borrowed £89 million from Export/Import Bank.

(d) U.K. repurchased from I.M.F. with U.S. dollars, sterling to the value of £71 million.

(e) U.K. paid to I.M.F. a subscription of £232 million (£174 million in sterling and £58 million in gold).

(f) U.K. repaid £89 million to Export/Import Bank.

NOTES ON STATISTICAL APPENDIX

GENERAL NOTES

Country groups

The following country groups are used; they include all the countries listed against them, unless stated otherwise.

Industrial countries: USA, Canada, UK, Continental OEEC, and Japan.

North America: USA and Canada only.

OEEC: Austria, Belgium-Luxembourg, Denmark, France, West Germany, Greece, Iceland, Irish Republic, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, UK.

Continental OEEC: Excludes sterling area countries—Irish Republic, Iceland, and UK.

Western Europe: Continental OEEC, Yugoslavia and Finland.

Primary producing countries: All countries not included as industrial countries above, except for Eastern area, Yugoslavia and Finland.

Overseas sterling area: The British Commonwealth (except Canada), British Trust Territories, British Protectorates and Protected States, Burma, Irish Republic, Iceland, Jordan, Libya, Muscat and Oman.

Latin America: Central America, including Mexico but excluding the Panama Canal zone, and South American countries excluding European possessions.

Oil-producing countries, sterling: British-protected Persian Gulf States (including Kuwait) and Aden, Sarawak, Brunei and Trinidad.

Oil-producing countries, non-sterling: Iraq, Iran, Saudi Arabia, Venezuela and the Netherlands Antilles.

Other primary producing countries: All primary producing countries not included elsewhere.

Eastern area: Albania, Bulgaria, Czechoslovakia, Eastern Germany, Hungary, North Korea, North Vietnam, Poland, Roumania, Union of Soviet Socialist Republics, and the People's Republic of China.

Valuation of imports and exports

Imports are valued c.i.f. and exports and re-exports f.o.b. unless otherwise stated.

Seasonal adjustments

A number of monthly and quarterly series have been adjusted to eliminate the estimated normal seasonal variations. The procedures used and the reliability of the adjustments were described in the article 'Seasonal corrections' in the September 1959 issue of the Review (No. 5), on pages 50-56. Additional seasonal correction factors were given on page 61 of the November 1959 issue (No. 6) and page 59 of the January 1960 number (No. 7). The main point to be noted is that all seasonally adjusted series must be regarded as containing a margin of uncertainty, depending in particular on the extent to which seasonal variation can be shown to have been regular in the past.

NEW OR REVISED SERIES

(Full definitions and explanations were given in the *National Institute Economic Review*, number 8, March 1960, pages 52-56. An article on pages 36-38 of the Review, number 1, January 1959, explained the figures in table 14 for stock changes of imported commodities, and an article on pages 32-35 of that number explained the NIESR price index numbers in table 24. The notes on page 44 of the May issue and on page 60 of the July issue of the Review described revisions or new figures. The notes below describe some further revisions.)

Table 1. Gross domestic product

New official index numbers of output at 1954 factor cost (*Economic Trends*, August 1960) have been included in this table. This new series also means that the item 'gross domestic product per person' in table 5 and the items 'income from employment per unit of output' and 'all property income per unit of output' in table 7 have been revised.

Table 2. Production in industry

Selected durable consumer goods. A revised seasonally adjusted index is introduced in this issue. Whereas for the old index seasonal adjustments were made to the weighted total, now seasonal adjustments are made to each of the constituent series. The revised index provides a more reliable guide to quarter-to-quarter changes.

Table 8. Personal income and expenditure

This table presents new estimates of personal income and expenditure since 1954, made by the CSO in accordance with the results of the 1958 Census of Production. Revisions up to 1953 will be available in the next issue of the Review.

Table 9. Fixed investment

Minor revisions have been made as the result of revisions in the official series.

Factory building approvals. This series, which was part of the old table 11, has now been included in this table. The figures refer to Great Britain only and have been adjusted for seasonal variations.

Table 10. Contractors' orders and work done

The series have been revised as the result of better information, supplied by the Ministry of Works, for conversion to 1954 prices.

Table 11. Changes in the volume of stocks

This is the same as the old table 12. The series have been revised in the light of the new estimates of the Board of Trade (*Economic Trends*, August 1960).

Table 12. New orders and orders on hand

Sources: *BOTJ*, *Shipbuilding Conference*

Engineering. The new series replace those in the old table 11 and have been revised in the light of the new data introduced by the Board of Trade (see *BOTJ* 22 July, 1960). As from 1958, the series have been extended to cover, apart from sectors of the engineering and electrical goods industries (order VI of the SIC), wheeled tractors, locomotives, railway track equipment, railway carriages and wagons, and heavy commercial vehicles. They still exclude passenger cars, standard types of commercial vehicles, motor cycles, the aircraft industry and some sections of the engineering and electrical industries which normally meet their orders from stock. The index numbers for 1954 to 1957 are based on much less complete information than those for later periods and give a broad indication of the direction of change, rather than a reliable measure of its extent.

Machine-tools: new orders. This series is now discontinued as it is included in the net new orders in engineering.

Textiles and Clothing. The series cover the wool, hosiery (and other knitted goods), and made-up clothing industries, and the spinning, weaving, and converting sections of the cotton and man-made fibre industries. There are a few branches of the textiles and clothing group where making for stock rather than to order is the normal practice; these are omitted from the new series.

Net new orders. These have been revalued at average 1958 constant prices and adjusted to allow for differences in the length of calendar months, but not for holidays or for other seasonal variations. For engineering the index numbers are based on average 1958 deliveries, for textiles and clothing on average 1959 deliveries.

Orders on hand. These have also been revalued at average 1958 constant prices and show the orders on hand at the end of period, based on January 1958=100 in the engineering, and April 1959=100 in the textile and clothing industries.

Table 25. Gold and foreign exchange reserves

Italy. Foreign exchange held by residents pending surrender to the Exchange Office is no longer included.

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